

D.3.7



United States Steel Corporation
600 Grant Street
Pittsburgh, PA 15219-2800
412 433 6191
Fax: 412 433 6169
email: rlmendoza@uss.com

Richard L. Menozzi
Director
Environmental /Remediation

February 1, 2008

Via E-Mail

Ms. Tamara Ohl
U. S. Environmental Protection Agency – Region V
77 West Jackson Blvd (DRE-9J)
Chicago, IL 60604

RE: Air Monitoring Plan
Proposed Adjustment to Frequency of Sampling
GCR Sediment Remediation Plan
U. S. Steel – Gary Works
IND 005 444 062

Dear Ms. Ohl:

As was agreed to and implemented since the initiation of the most recent phase of the GCR Sediment Remediation Project (Jan 2007), USS is conducting air monitoring at the CAMU on a daily frequency (Monday through Friday). In addition, USS has been conducting air monitoring in the residential area, on a daily basis, since April 2007.

In conjunction with the daily monitoring, analytical results were obtained on a 24 hour turn-around-time (TAT) starting in April 2007. In December 2007, following the completion of dredging and pursuant to USS' request, the analytical results have been reported on a three day TAT.

With the dredging operations now complete and in consideration of the air monitoring analytical results obtained to date, we believe that further adjustments can be made to the air monitoring program. To that end, USS proposes the following:

1. For the near term, conduct monitoring at the CAMU and residential area once per week. It should be noted that the water column in Unit 1 of the CAMU is frozen and would be expected to remain frozen until, perhaps, mid March. The ice forms a near perfect "cap" which inhibits the release of VOCs or SVOCs and the analytical results reflect that condition. We propose a monitoring frequency starting the week of February 10, of once/week, alternating the day (Monday through Friday) each week, through March 15, until the ice thaws or the monitoring results suggest otherwise.
2. From March 16th forward, conduct monitoring three times per week (Monday-Friday) alternating the days on a weekly basis. We believe that sampling at this frequency will continue to ensure that any emissions from the CAMU are not having a negative impact to nearby receptors. This request to reduce the monitoring frequency is supported by the analytical results compiled to date. Recognizing that dredging operations have been completed, we evaluated the benzene and naphthalene air monitoring results in 2007 for the time periods during which the dredge was not operating; specifically July 24 through October 28 and December 6 through the present. With the exception



February 1, 2008
Page 2

of a notification level exceedence for benzene on January 10, 2008 at the northernmost residential station, a result which USS believes the CAMU could not be considered the source, there have been no exceedences and concentrations of benzene and naphthalene are near background levels in the residential areas.

To support this proposal, USS will continue to evaluate the results, provide the results to EPA on a timely basis and should the results indicate that the CAMU may be the source of increased emissions, consideration will be given to increasing the monitoring frequency.

Should you have any questions or comments, please call. As indicated above, USS proposes to implement this revised plan, pursuant to EPA approval, the week of 10 February 2008.

Sincerely,

A handwritten signature in black ink, appearing to read "J. T. Volanski", is written over the "Sincerely," and extends down towards the "cc:" line.

cc: J. T. Volanski
M. R. Rupnow
J. L. Rey
K. L. Mentzel
C. D. Baker
S. West (IDEM)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

LU-9J

July 24, 2008

Via Certified Mail (7001 0320 0006 0202 5509)

Mr. Richard Menozzi
Director, Environmental Legacy/Remediation
U. S. Steel
600 Grant Street
Pittsburgh, PA 15219-2800

Re: Air Monitoring
Data Turn Around Time Modification
U.S. Steel - Gary Works
IND 005 444 062

Dear Mr. Menozzi:

By letter dated July 11, 2008, U. S. Steel (USS) requested the U.S. Environmental Protection Agency to modify the laboratory turn around time associated with the air monitoring conducted at the residential locations in Gary. USS requested to modify the turn around time from three days to five days. Because there have been no exceedances which can be attributed to the Corrective Action Management Unit (CAMU) in the past six months, your request is hereby approved. In the future, if exceedances occur which may be associated with the CAMU, the turn around time may need to be reduced.

If you have any questions, please contact me at 312.886.0991.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tamara Ohl".

Tamara Ohl
Project Manager,
Remediation and Reuse Branch
Land and Chemicals Division

SENDER: COMPLETE THIS SECTION

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Mr. Richard Menozzi
U.S. Steel
600 Grant Street
Pittsburgh, PA 15219-2800

2. Article Number
(Transfer from service label)

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PS Form 3811, March 2001

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Ms. Tamara Ohl
U.S. EPA
77 West Jackson Blvd, DE-9J
Chicago, IL 60604-3590

LW-9J





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

LU-9J

February 14, 2008

Via Facsimile and
Certified Mail (7001 0320 0006 0187 3606)

Mr. Richard Menozzi
Director, Environmental Legacy/Remediation
U.S. Steel
600 Grant Street
Pittsburgh, PA 15219-2800

Re: Corrective Action Management Unit
Air Monitoring
U.S. Steel - Gary Works
IND 005 444 062

Dear Mr. Menozzi:

By letter dated February 1, 2008, U.S. Steel (USS) requested revision to the air monitoring schedule associated with the Corrective Action Management Unit (CAMU). In response to emissions from the CAMU during active dredging, the frequency of air monitoring was increased to 5 days per week at the CAMU and in two areas within the residential area. USS is now requesting a reduction because the dredging operations are now complete.

To support this request, USS summarized results from air monitoring completed when dredging operations were suspended. The evaluation indicates that, with one exception, there have been no exceedances of benzene or naphthalene notification or action levels at the residential monitoring locations. USS believes, and U.S. EPA agrees, that the exceedance of benzene on January 10, 2008, at the residential location cannot likely be attributed to the CAMU given the predominant wind direction and the fact that there was no corresponding exceedance at the CAMU that day.

Therefore, in pursuant to Sections X and XXIII of the Resource Conservation and Recovery Act 3008(h) Consent Order, the request to modify the frequency of air monitoring is hereby approved. The monitoring program will follow the following frequency:

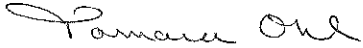
February 10, 2008 to March 15, 2008: Monitoring will occur once per week at the CAMU stations and at the residential locations.

From March 16, 2008: Monitoring will occur three times per week at the CAMU and the residential locations.

As is recognized by USS, should air monitoring results indicate that the CAMU may be a source of increased emissions, consideration will be given to increasing the monitoring frequency.

If you have any questions, please contact me at 312.886.0991.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tamara Ohl".

Tamara Ohl
Project Manager,
Remediation and Reuse Branch
Land and Chemicals Division

Cc: Hala Kuss, IDEM
Steve West, IDEM
Dorreen Carey, City of Gary

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Mr. Richard Menozzi
U.S. Steel
600 Grant Street
Pittsburgh, PA 15219-2800

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1. Article Addressed to:

Mr. Richard Menozzi
U.S. Steel
600 Grant Street
Pittsburgh, PA 15219-2800

2. Article Number
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C. Signature

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Ms. Tamara Ohl
U.S. EPA
77 West Jackson Blvd, DE-91
Chicago, IL 60604-3590

LU-95





Richard L Menozzi
<RLMenozzi@uss.com>

12/10/2007 01:43 PM

To

Subject Air Monitoring at CAMU

Tammy

Confirming our conversation of Friday 12/7/07 at Gary Works; EPA concurred with USS' request to discontinue the application of Powered Activated Carbon (PAC) to the supernatant water at CAMU Unit 1. This request was brought forward in consideration the current status of the project, physical conditions at Unit 1 and air monitoring results to date. In support our request it was noted that the dredging of Stations 12+00 through 75+00 was completed on 12/6/07 thus there will be no further placement of dredged material into the unit, secondly the supernatant waters of Unit 1 are frozen thus making further application of PAC not only unsafe but impossible in the near term and finally the air monitoring results, to date, show no notification level or action level exceedences at the residential monitoring stations. As further discussed, USS will maintain a supply of PAC at the site, should it be necessary, safe and practical to apply a maintenance dose to the supernatant.

Also discussed was USS' request to discontinue the 24 hour turn around time (TAT) and initiate a 3 day TAT, which re establishes the TAT as originally followed in the AMOP, for the analytical results from the air monitoring. Again this request is supported by the air monitoring results, to date, that show no notification level or action level exceedences at the residential monitoring stations. USS will continue to collect air samples daily (M-F), until results support a request to adjust (decrease) the frequency of sampling.

If you have any questions or your recall of our discussion differs, please give me a call or reply with an email.

Thanks

Richard L. Menozzi
Director - Environmental Remediation
United States Steel Corporation
600 Grant Street, Room 2068
Pittsburgh, PA 15219
412-433-6191
412-433-5920 (fax)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

LU-9J

September 18, 2007

Via Hand Delivery

Ms. Dorreen Carey
Director, Environmental Affairs
City of Gary
839 Broadway – Suite N206
Gary, Indiana 46402-1236

RE: Air Monitoring
Corrective Action Management Unit
U.S. Steel – Gary Works
IND 005 444 062

Dear Ms. Carey:

Per your request, and as a follow up to our meeting last month in your office, the information below provides an analysis of naphthalene data resulting from the air monitoring program for the Corrective Action Management Unit. I hope this information is helpful to you. Please do not hesitate to call me with any questions.

Monitoring Results

Since April 27, 2007, USS has collected air samples from two locations along Ellsworth Street in the residential area near the Corrective Action Management Unit (CAMU). The first sampling station is along Ellsworth north of 2nd Avenue. The second station is on Ellsworth between 3rd and 4th Avenue. These samples are collected for a time period of 24 hours. From sampling conducted from April 27th to September 1st, naphthalene results ranged from non-detect to 34.7 $\mu\text{g}/\text{m}^3$.

The average concentration is calculated by totaling the measured concentrations and lab reporting limits, and dividing that sum by the number of sampling days. During this time period the average concentration of naphthalene at the residential locations was approximately 2.0 $\mu\text{g}/\text{m}^3$ at the first Ellsworth St location (north of 2nd Avenue), and 0.9 $\mu\text{g}/\text{m}^3$ at the second location on Ellsworth St (between 3rd and 4th Avenue).

The average (or mean) concentrations above are estimates based on data available at this time. Of course, there is some uncertainty in estimating the mean. Additional data

provides a higher level of confidence in the estimate. One way to estimate a long term average concentration from a shorter term sampling data set is to use a confidence interval with a lower and upper limit for the mean. The actual mean concentration likely falls between the lower and upper limit for the mean. To be sure we are not underestimating potential health risks, we use the 95% Upper Confidence Limit (UCL). The 95% UCL uses the shorter term sample average and that sample's variability to estimate a longer term value that is unlikely (95% probability) to be exceeded. The 95% UCL is much more likely to overestimate than underestimate true exposure, but is often used as a health protective approach in view of uncertainties. The 95% UCL at the residential locations is $4.8 \mu\text{g}/\text{m}^3$ at the first station, and $1.3 \mu\text{g}/\text{m}^3$, for the second sampling location.

Background

According to U.S. EPA's Air Toxics Website: "Acute (short-term) exposure of humans to naphthalene by inhalation, ingestion, and dermal contact is associated with hemolytic anemia, damage to liver, and neurological damage. Cataracts have also been reported in workers acutely exposed to naphthalene by inhalation and ingestion. Chronic (long-term) exposure of workers and rodents to naphthalene has been reported to cause cataracts and damage to the retina. Hemolytic anemia has been reported in infants born to mothers who "sniffed" and ingested naphthalene (as mothballs) during pregnancy. Available data are inadequate to establish a causal relationship between exposure to naphthalene and cancer in humans. EPA has classified naphthalene as a Group C, possible human carcinogen." (see <http://www.epa.gov/ttn/atw/hlthef/naphthal.html>)

Non-carcinogenic Effects

U.S. EPA's Integrated Risk Information System has calculated a Reference Concentration of $3 \mu\text{g}/\text{m}^3$ for naphthalene based on nasal effects on mice. The reference concentration is an estimate of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious noncancer effects during a lifetime. It is not a direct estimator of risk but rather a reference point to gauge the potential effects. At exposures increasingly greater than the reference concentration, the potential for adverse health effects increases. Lifetime exposure to the reference concentration does not imply that an adverse health effect would necessarily occur. The approximate average concentration of naphthalene measured at both residential locations is below the reference concentration. The 95% UCL value for the first residential sampling location exceeds the Reference Concentration. The 95% UCL for the second location is less than the Reference Concentration.

Carcinogenic Effects

U.S. EPA uses mathematical models, based on human and animal studies, to estimate the probability of a person developing cancer from breathing air containing a specified concentration of a chemical. U.S. EPA's Office of Air Quality Planning and Standards recommends a California Environmental Protection Agency-based cancer inhalation unit

risk (IUR) for naphthalene of 3.4×10^{-5} per $\mu\text{g}/\text{m}^3$ derived with methods similar to those of U.S. EPA. An IUR is the upper-bound excess lifetime cancer risk estimated to result from continuous exposure to 1 μg of naphthalene per cubic meter of air. A larger inhalation unit risk means a more potent chemical. U.S. EPA believes that the true risk, while not identifiable, is unlikely to exceed the inhalation unit risk, and is likely to be lower. Thus, the inhalation unit risk is likely to be protective of all potentially exposed populations.

The average concentration of naphthalene over the last four months (April through September 1st) at the first residential sampling location is $2.0 \mu\text{g}/\text{m}^3$. U.S. EPA estimates that, if an individual were to continuously breathe air containing these concentrations, over his or her entire lifetime, that person would theoretically have no greater than a 6.8 - in- 100,000 (6.8×10^{-5}) increased chance of developing cancer. This is within U.S. EPA's target risk range. Using the 95% UCL at this same location ($4.8 \mu\text{g}/\text{m}^3$), U.S. EPA estimates that, if an individual were to continuously breathe air containing these concentrations over their lifetime, that person would theoretically have no greater than a 1.6 - in- 10,000 (e.g. 1.6×10^{-4}) increased chance of developing cancer. This exceeds U.S. EPA's lifetime target risk range of 1.0×10^{-6} to 1.0×10^{-4} . For the second sampling location, the average concentration of naphthalene was $0.9 \mu\text{g}/\text{m}^3$ and the 95% UCL was $1.3 \mu\text{g}/\text{m}^3$. U.S. EPA estimates that, if an individual were to continuously breathe air containing these concentrations, over his or her entire lifetime, that person would theoretically have no greater than a 3.1 - in - 100,000 (3.1×10^{-5}) increased chance of developing cancer (using the average concentration) and no more than a 4.4 - in-100,000 (4.4×10^{-5}) increased chance of developing cancer (using the 95%UCL). Both of these values are within U.S. EPA's target risk range.

The actual risk of cancer is probably lower than the calculated number. The method used to calculate the naphthalene IUR assumes that high dose animal data can be used to estimate the risk for low-dose exposures in humans, and that all naphthalene exposures above zero have some cancer risk. Both assumptions are likely to overestimate actual naphthalene cancer risk. Lastly, the method computes the 95% upper bound for risk, rather than the average risk, which results in there being a very good chance that the risk is actually lower, perhaps by several orders of magnitude. One order of magnitude is 10 times greater or lower than the original number, while two orders of magnitude are 100 times greater or lower, and three orders are 1000 times greater or lower.

Conclusions

Twenty-four hour samples have been collected in the residential area near the CAMU since April when elevated concentration of benzene and naphthalene were detected at the CAMU's berm. The elevated concentrations at the berm occurred when the dredge was removing sediment from the portion of the river that contained high levels of naphthalene and benzene in the sediment.

The average concentrations of naphthalene at both residential locations are within U.S. EPA's target carcinogenic risk range for a lifetime exposure; and are below

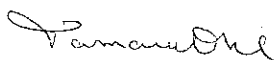
U.S. EPA's reference concentration for noncancer effects. In applying a more conservative approach, the 95% UCL, the first residential location slightly exceeds U.S. EPA's target carcinogenic risk range and reference concentration (assuming a lifetime of exposure at that concentration). The second location does not exceed the target carcinogenic risk range or the reference concentration.

U.S. EPA believes that the actual risk of cancer is probably lower than the calculated number for several reasons. First, U.S. EPA compared the conservative exposure concentration average for data gathered over the past four *months*, to risk values associated with a *lifetime* (i.e. 70 years) of exposure. Higher concentrations of naphthalene are associated with active sediment removal in a highly contaminated section of the river. This work is expected to be completed by the end of the year. U.S. EPA expects that naphthalene levels will again return to much lower concentrations following dredging operations, as was the case following dredging in 2003. In fact, dredging has temporarily stopped, and concentrations of naphthalene have decreased. Second, using a 95% UCL is a more conservative approach to evaluate the true average concentration of naphthalene. Finally, assumptions used in deriving naphthalene's IUR are more likely to overestimate than underestimate its actual cancer risk, as described previously.

USS will continue to monitor the air at the residential locations, and currently continues to add activated carbon to Unit 1 of the CAMU. USS may request to stop activated carbon application in the event that naphthalene concentrations remain low. U.S. EPA will continue to closely monitor the air sampling results.

Again, please do not hesitate to contact me at 312.886.0991 with any questions.

Sincerely,



Tamara Ohl
Project Manager,
Remediation and Reuse Branch
Land and Chemicals Division

Cc: Hala Kuss, IDEM
Steve West, IDEM
Rick Menozzi, U.S. Steel



United States Steel Corporation
600 Grant Street
Pittsburgh, PA 15219-2800
412 433 6191
Fax: 412 433 6169
email: rlmendoza@uss.com

Richard L. Menozzi
Director
Environmental
Legacy/Remediation

VIA FEDERAL EXPRESS

November 26, 2007

Ms. Tamara Ohl
U.S. Environmental Protection Agency – Region V
77 West Jackson Blvd. (DRE-9J)
Chicago, IL 60604

**RE: Corrective Action Management Unit
Air Monitoring Plan – July 2007
Response to Comments
GCR Sediment Remediation Project
U. S. Steel - Gary Works
IND 005 444 062**

Dear Ms. Ohl:

Attached please find U. S. Steel's (USS) response to U. S. EPA's comments dated October 11, 2007, on the revised Air Monitoring Plan.

As we discussed, USS is submitting a "response to comments" for your review and/or discussion in advance of revising the Air Monitoring Plan (Plan) in its entirety. Following your acceptance of our "response to comments" and any subsequent discussions, USS will revise the Plan accordingly.

Should you have any questions or wish to arrange for a meeting to discuss our response in further detail, do not hesitate to call.

Sincerely,

Attachment
As stated

cc:

JT. Volanski w/o attach
CDBaker
KLMentzel
MRRupnow
JLRey
HKuss, IDEM
SWest, IDEM

**U.S. STEEL RESPONSES TO THE OCTOBER 12, 2007 US EPA COMMENTS ON THE
DRAFT 2007 CAMU AMOP FOR U.S. STEEL - GARY WORKS**

U.S. Steel provides the following responses to EPA comments on the 2007 CAMU Air Monitoring Plan (AMOP).

1. **EPA Comment** - In Section 2.2, clarify why reducing the source area to 20 by 20 meters is appropriate.

U.S. Steel Response - This section of the CAMU AMOP addresses model performance on a 24 -hour average basis. The reduction in the size of the area source used to simulate emissions from the CAMU was intended to more accurately reflect the release characteristics of waste disposal over a 24-hour period. This is in contrast to the longer time period reflected in the original modeling, over which emissions could occur from a much larger area. The 20 by 20 meter size was selected based on professional judgment, intended to reflect a smaller short-term disposal area.

2. **EPA Comment** - In Section 2.2, provide a reference for the statement that PM₁₀ particles disperse in a manner similar to that of gaseous contaminants, including volatile organic compounds (VOC's).

U.S. Steel Response - The statement highlights the fact that PM₁₀ particles are not affected significantly by gravitational settling, and therefore have similar dispersive characteristics as gaseous contaminants. A reference for this can be found in the EPA document AP-42 (<http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s02.pdf>, p. 13.2-2).

3. **EPA Comment** - Section 2 evaluates the accuracy of the model using the monitoring done in 2003 and 2007. Air data generated as part of the CAMU monitoring program should be provided as an attachment/appendix to the plan. Providing the data in an electronic format is acceptable.

U.S. Steel Response - U.S. Steel will provide additional air data collected as part of the CAMU monitoring program. The data will be provided to EPA in an electronic format.

4. **EPA Comment** - The dilution factor assessment contained in Table 2-1 should be expanded, or an additional table added, to evaluate the dilution factor over the time period during which 24 hour samples were collected at the CAMU and residential locations.

U.S. Steel Response - U.S. Steel will provide additional data on the dispersion factor, by focusing on when high levels of naphthalene were identified at CAMU Station 2 with winds coming primarily from the north. This comparison is the best indicator of the potential dispersion that occurs from the CAMU to the residential area, and represents the worst case scenario by only considering sampling events when wind is from the north. The identified sample comparison, as shown in the attached Table 1, indicates that the dispersion factor, based on data collected at the monitoring station located on Ellsworth Street north of 2nd Avenue, varies from 20 to 231 with an average dispersion of 85. The attached table will be included in the CAMU AMOP.

5. **EPA Comment** - Sections 3.1 and 3.1.1 conclude that the air monitoring results indicate that there is no unacceptable risk posed to receptors. This conclusion should be supported by a more detailed assessment of the concentration(s) of emissions measured at the CAMU since operations began in 2003. The assessment should focus on benzene and naphthalene which were measured above action levels during project implementation. The assessment should graphically depict concentrations of each chemical measured over time in relation to the operation status of the CAMU, and the notification and action levels. U.S. Steel should consider addressing cumulative cancer risk estimates for benzene and naphthalene. Also, U.S. EPA guidance recommends discussing criteria pollutant risks (e.g., PM_{2.5} and ozone) as well as air toxics (e.g. benzene and naphthalene). Refer to http://www.epa.gov/ttn/fera/data/risk/vol_3/Chapter_03_April_2006.pdf. "Risk Assessment for Air Toxics and Criteria Pollutants-What's the difference?"; Volume 3, p.3-3, U.S. EPA Air Toxics Risk Assessment Reference Library).

U.S. Steel Response - The statement that there was no unacceptable risk is based on the fact that the average airborne concentration of benzene and the other constituents measured during the dredging activities was less than the levels predicted in the 2003 risk assessment conducted for the original AMOP. U.S. Steel does not believe that it is warranted to focus any risk analysis on airborne concentrations that exceeded the action levels, since risk is based on the average concentration at the residential area (which incorporate dispersion), not just on the few action level exceedences that occurred at the CAMU. This assessment is shown in the four attached graphs that depict airborne concentrations during the original dredging project. The graphs will be included as an appendix to the CAMU AMOP.

The 2003 AMOP, as well as this updated 2007 AMOP, were based on evaluating naphthalene as a non-carcinogen, which U.S. Steel believes is still appropriate (see response to comment # 17). Consequently, only one constituent, benzene, is recognized by EPA as a carcinogen. Furthermore, the cumulative risk of benzene plus naphthalene, if calculated, would still be far less than the upper end of the cancer risk range of 1×10^{-4} , since the Notification Level for benzene was conservatively set at a cancer risk of 1×10^{-6} (i.e., the lower end of the cancer risk range) for protection of human health in the residential areas.

6. **EPA Comment** - Section 3.1 identifies that there were no particulate matter exceedances as measured by the PUF sampler for PCBs and polyaromatic hydrocarbons. For clarity, provide the time period during which the CAMU was sufficiently dewatered and particulates *could* have been generated.

U.S. Steel Response - From project photographs, Unit 2 was dry from August 2004 to May 2007, at which time U.S. Steel began transferring water from Unit 1 to Unit 2.

7. **EPA Comment** - Section 3.1.1 provides for a particulate baseline monitoring time period of 5 days, plus 8 days of particulate monitoring completed in 2006. U.S. Steel will then evaluate the data with the goal of providing a background concentration by wind sector that is reflective of the variety of wind directions and speed that can occur at the CAMU. As these variables can differ by season, U.S. EPA recommends that baseline monitoring occur over a longer time period and, potentially, on a seasonal basis. Further, U.S. EPA recommends that U.S. Steel conduct particulate monitoring at the residential locations concurrent with the CAMU monitoring. U.S. Steel may also want to consider a monitoring schedule that coincides with regional monitoring schedules. The 2007 monitoring schedule for Total Suspended Solids (TSP), Lead, Particulate Matter, and volatile organic constituents can be found at

<http://www.epa.gov/ttn/amtic/files/ambient/pm25/cal2007.pdf>. The 2008 schedule can be found at <http://www.epa.gov/ttn/amtic/calendar.html>.

U.S. Steel Response - The previous particulate background monitoring (i.e., eight days) was completed in May-June, 2006, and it is anticipated that any future background monitoring (prior to future waste deposition) will likely occur at a different time of the year. Particulate background monitoring at that time will, in part, address EPA's concern regarding seasonal variation in particulate levels.

U.S. Steel does not believe that particulate matter monitoring in the residential areas is warranted for a number of reasons, including: 1) there were no exceedances recorded at the CAMU during the 18-month period of time that PUF samples were collected; 2) the Indiana toll road (I-90) is located between the CAMU and the residential areas which will likely serve as a source of particulate matter from vehicular traffic; 3) there is a change in elevation from the CAMU to the residential areas which could impact particulate monitoring; and, 4) construction activities for the widening of I-90 are underway, thus considerably increasing airborne particulate matter in the region.

The particulate monitoring schedule will be determined by waste disposal requirements, which may be different than the EPA 2008 monitoring schedule (once every three or six days) for measuring particulate matter at regional sites.

8. **EPA Comment** - U.S. EPA requested U.S. Steel add a monitoring location to evaluate potential exposures to receptors at the adjacent facility to the east of the

CAMU. U.S. Steel has proposed moving the station currently located on the south berm of Unit 2, to the east berm of Unit 2. As proposed, potential emissions from Unit 2 will not be measured when the wind is from the North. Therefore, U.S. EPA recommends that monitoring stations be placed on the eastern and southern berm bounding Unit 2.

U.S. Steel Response - The monitoring station that is proposed to be located south of Unit 1 is not fixed but will actually be moved to measure concentrations south of the disposal activities, whether those activities occur south of Unit 1 or Unit 2; therefore, potential emissions from Unit 2 will be measured when the wind is from the north, if waste disposal is occurring in Unit 2. In addition, monitoring stations will be located on the east and west berms of the CAMU to evaluate potential exposure to the adjacent industrial facilities.

9. **EPA Comment** - Section 3 very briefly discusses the purpose of PM₁₀ monitoring. First, the discussion should be supplemented with discussion identifying why PM₁₀ is more appropriate for the project than PM_{2.5} (also a recognized level for evaluation). Further, the statement that PM₁₀ – sized particles have the potential to be inhaled into the lungs should be referenced.

U.S. Steel Response - The text of Section 3.1.1 will be revised to indicate that while PM₁₀ has the potential to be inhaled, these particles are, in general, too large to reach the lungs. These particles tend to be trapped in the respiratory tract and subsequently swallowed (i.e., oral exposure). Nonetheless, consideration of PM₁₀ is more appropriate than PM_{2.5} since the concern for constituents, other than volatiles, is primarily for metals and possibly for PCBs, which are likely to adhere to larger particles. If only PM_{2.5} is considered, the analysis would ignore a large portion of the airborne dust that could contain these constituents. Accordingly, PM₁₀ is more conservative than PM_{2.5}.

10. **EPA Comment** - The last paragraph on page 13 provides that U.S. Steel may modify or discontinue the air monitoring at the west and east berms if no exceedances are recorded over a time period of 12 months. U.S. EPA agrees that the monitoring program should be sufficiently flexible such that the program can be modified considering a number of factors, including monitoring results and operational changes. Revise the text to identify that the adequacy of the monitoring program will be evaluated as part of a request to dispose additional remediation waste material into the CAMU. Also, revise the last paragraph to state that modifications to the program to reduce the frequency of monitoring or the parameters monitored will not be implemented without prior U.S. EPA approval.

U.S. Steel Response –As stated in the U.S. Steel's response to EPA's comment # 14, and previously agreed by EPA and U.S. Steel, U.S. Steel will obtain approval from EPA prior to the disposal of each new waste stream. At that time, U. S. Steel will evaluate the monitoring program to assess any new constituent that may be present in the waste material.

11. **EPA Comment** - The Facility Wide Quality Assurance Project Plan contains quality procedures for TO-13A and TO-14A. The Plan needs to incorporate quality assurance procedures for the TEOM 1400A.

U.S. Steel Response – Pertinent information and quality assurance procedures for the TEOM 1400A will be incorporated into the Facility Wide Quality Assurance Project Plan.

12. **EPA Comment** - Text on page 14 indicates that monitoring procedures will follow the 2002 Quality Assurance Project Plan with exceptions noted. First, the Plan should briefly list each method to be used in the monitoring program. Further, as the quality assurance procedures for each monitoring method are incorporated into the Facility-Wide Quality Assurance Project Plan (QAPP), include a reference to the QAPP provided in this plan. Finally, the first bullet lists method TO14A as an exception. Clarify the nature of the exception.

U.S. Steel Response –U.S. Steel will ensure that the Facility Wide Quality Assurance Project Plan will include quality assurance procedures for all procedures and methods related to the monitoring program. Additionally, Section 3.1.2 of the CAMU AMOP will be revised to outline the analytical methods used in the monitoring program and will include reference to the Facility Wide Quality Assurance Project Plan.

13. **EPA Comment** - The statement on page 17 that “The factor of five was selected based on the consideration that high individual 24-hour concentrations will not significantly contribute to long-term risk” should either be supported by reference or removed from the text.

U.S. Steel Response - The factor of 5 (described on page 16 – not page 17) for adjusting from a Notification to an Action Level is described in the 2003 AMOP. This is also the value previously agreed to by EPA in the 2003 AMOP.

The reason that the factor of 5 between the Notification and Action Levels is not of concern is that neither of the levels contribute significantly to the long-term risk. Section 4.1.2 of the 2007 AMOP describes that the Notification Levels were established at the lower end of the cancer risk of 1×10^{-6} , based on an average concentration at the residential area, and a five fold increase, especially short-term, will not significantly add to the risk.

14. **EPA Comment** - Statement 1 on page 18 presents a theoretical maximum concentration for PCBs in wastes requested to be disposed of into the CAMU. A similar maximum concentration for metals has not been proposed at this time. Rather, U.S. Steel proposes to complete the evaluation on a case by case basis depending on the composition of the waste material being disposed. With the site-wide completion of the Phase I's, U.S. Steel should have sufficient information to

estimate a theoretical maximum concentration within this Plan for the primary metals of concern.

U.S. Steel Response - U.S. Steel believes it is more appropriate to evaluate any additional constituents present in the waste stream prior to disposal in the CAMU and incorporate this evaluation into U.S. Steel's request to EPA for disposal of remediation waste into the CAMU. This disposal activity may not occur for a period of time, and the analysis of constituents will be relevant to a particular disposal activity. In addition, any evaluation done now, may need to be re-evaluated at that time, due to current scientific approaches to risk (e.g., toxicity values may change).

15. **EPA Comment** - The Plan should include a table summarizing the frequency of sampling for each parameter group, and receptor, and location.

U.S. Steel Response – U.S. Steel does not see the applicability of such a table, particularly since the ever-changing prevailing wind direction plays a significant role in determining the receptor populations that could be impacted. As stated in the AMOP, there are three monitoring stations (located on the east and west berms, with one movable station located to the south) around the CAMU. Nonetheless, U.S. Steel has prepared a table (see attached Table 2) to illustrate the 2007 monitoring program.

16. **EPA Comment** - Exposure values developed by other organizations are provided in Section 4.4. The section should include an explanation of the function of each of the levels referenced.

U.S. Steel Response – As described in Section 4.4 of the CAMU AMOP, two types of exposure values are presented, 1) occupational exposure values, such as those developed by the Occupational Safety and Health Administration, which are used for the purpose of ensuring worker protection, and 2) acceptable air concentrations, such as those developed by the World Health Organization, that have various uses. No further explanation in the text is necessary.

17. **EPA Comment** - Tables 4-1 to 4-5 present calculations of risk-based levels for various receptors. With the exception of adding Trichloroethene and removing several chemical parameters, the tables appear identical to those developed for the dredging project. First, the text should discuss the reduction in parameters evaluated with regard to the chemical content of remediation wastes that may be added to the CAMU. Second, the operation timeframe (exposure duration) of the CAMU is currently estimated to be 3-5 years (as identified in the introduction of the Plan). The exposure duration in the tables is set at 2 years. Parameters in the tables should be updated and tailored for the next phase of CAMU operations. Further, U.S. EPA recommends using an inhalation unit risk factor for naphthalene developed by the California Environmental Protection Agency in evaluating carcinogenic risk. The tables should be revised accordingly.

U.S. Steel Response - The only reductions in parameters between original AMOP for the dredging project and the 2007 AMOP is the elimination of the PAHs. U.S. Steel believes that this is appropriate since the PAHs were of potential concern for the sediments in the GCR, while none of the waste streams identified, to date, contain significant levels of PAHs. In addition, during the dredging air monitoring, no significant levels of PAHs were identified, even though high concentrations of PAHs were reported in the sediment material.

The concentration estimates reflected in the 2003 AMOP represented a continuous level of emissions from the CAMU, and emissions during dredging based on the projected dredging schedule. It is likely that any potential emissions from future operations will occur on a much more intermittent basis than those anticipated in the original plan. The effect of an intermittent schedule is that concentrations over the 3-5 year period will be considerably less than concentrations averaged over the original 2 year period. Lower concentration inputs for the risk assessment will counter-balance the potentially longer exposure period, resulting in what is likely a conservative estimate of risk even with the 2 year exposure duration.

U.S. Steel believes it is premature to evaluate naphthalene based on CalEPA proposed unit risk factor for several reasons. First, EPA is currently evaluating the potential carcinogenicity of naphthalene and, according to the IRIS tracking data; EPA is not due to complete their recommendation for naphthalene until at least September 2009. Additionally, there is substantial controversy within the scientific community regarding the potential carcinogenicity of naphthalene, and it would be premature at this time to substitute a value proposed by a single entity (i.e., CalEPA) rather than waiting on the recommendation made by the scientific community (including internal EPA, other agency and peer review inputs) typically involved in substance assessments. Secondly, there is insufficient information available to evaluate the scientific basis for the California evaluation and, thirdly, Cal EPA lists naphthalene as "suggestive evidence of carcinogenicity". U.S. Steel believes this designation is insufficient to warrant evaluation of naphthalene emission on the basis of their undocumented determination of potency. It is also important to note that this project has been ongoing for several years based on EPA's published Reference Concentration (RfC) for naphthalene. It is, in U.S. Steel opinion, unwarranted at this time to make a change in toxicity values since the controversy over this issue will not be resolved for at least two years. Furthermore, when or if, EPA develops a unit risk factor for naphthalene, it is likely that it will be different than that developed by CalEPA. Such changes in the perceived level of risk would be confusing to the residential community.

18. **EPA Comment** - The Response Action Plan should provide further detail regarding actions that will be taken if a notification or action level is exceeded. The text should describe any additional monitoring and/or actions that will be taken in the event of an exceedance. The Plan should be modified such that U.S. Steel will request EPA approval to terminate monitoring after sufficient data has been attained that is representative of meteorological conditions and during which there have been no exceedances.

The notification and action levels are based on a risk evaluation that considers exposure over a number of years, or, in the case of particulates, 24 hours or a one year average. The levels are not calculated to represent concentrations that would be indicative of an emergency situation. While past air monitoring data provided to U.S. EPA do not exceed screening levels developed for very short-term exposures, it is reasonable to outline emergency response procedures. Please revise the plan accordingly.

U.S. Steel Response –Waste streams identified for disposal at the CAMU are contaminated soil with VOCs and metals. It is scientifically impossible to have concentrations of these substances in soil that could generate airborne concentration at levels that would be of concern for short-term exposure. As indicated on Page 20 of the 2007 AMOP, the TEEL-0 and the PRPGs are orders of magnitude higher than the Notification and Action Levels, and it would be practically impossible to have sufficient concentration of these substances in soil that could result in an airborne concern in the residential area. In addition, a review of analytical data from any potential waste-stream would clearly identify any material that might be of concern for short-term risk.

Nonetheless, the following public notification program will be included in the 2007 AMOP.

Public Notification System for Emergencies at Gary Works

1. Incident occurs within Gary Works which requires Emergency Response
2. Gary Works Security is Notified of Incident
3. Gary Works Security determines magnitude of the incident and if Lake County Officials need to be Informed
4. Lake County Officials then contact C.A.N. which is short for Community Alert Network
5. The C.A.N. then determines who needs to be called through a protocol system

19. **EPA Comment** - The Plan should provide a description of the monitoring frequency, parameters, and location that will be conducted for workers in accordance with the Occupational Safety and Health Administration requirements.

U.S. Steel Response – U.S. Steel workers are covered by the U.S. Steel's Facility Health and Safety Plan (HASP). Contractors working at the CAMU, on the other hand, are compliant to the requirements of their own HASP. U.S. Steel will provide, to the Contractor, the site-specific requirements necessary to prepare a HASP for work at the CAMU. Thus, U.S. Steel does not find it necessary to include these requirements in the AMOP. Should U.S. Steel provide the requirements in the AMOP to their Contractors, following an approved AMOP, U.S. Steel may then have liability for the Contractor's HASP.

20. **EPA Comment** - The Plan should have a section that describes how air monitoring data will be routinely provided to U.S. EPA. Currently, U.S. Steel provides U.S. EPA with e-mail notification of preliminary results, which is followed by the validated results, also by e-mail. This is acceptable provided U.S. Steel continues to maintain the data base compiling the individual monitoring events and provides this report to U.S. EPA on an annual basis. For convenience, the compilation can be included in the CAMU Use and Operations and Maintenance Summary Report that will be submitted to U.S. EPA by July 15th of each year pursuant to the approved Operations and Maintenance Plan.

U.S. Steel Response – U.S. Steel will provide the air monitoring data to EPA with the Operation and Maintenance Summary Report.

21. **EPA Comment** - During dredging in 2007, U.S. Steel monitored air quality at two residential locations. Information from these locations was extremely valuable in evaluating the conditions at the residents with respect to concentrations measured at the CAMU. U.S. EPA believes residential monitoring would provide a continued benefit to assess any potential impacts from the CAMU. The Plan should be revised to propose sampling at the residential locations.

U.S. Steel Response –Air monitoring at the residential locations will continue until EPA and U.S. Steel agree that continued monitoring is not longer necessary. No additional monitoring is planned by U.S. Steel.

22. **EPA Comment** - The Table of Contents incorrectly Lists Table 2-2 as 2-1.

U.S. Steel Response – The Table of Contents for the CAMU AMOP will be revised to correctly list Table 2-2.

Table 1. Evaluation of Dilution Factor for Naphthalene Exceedance at CAMU

Sampling Date ^b	Wind direction	Naphthalene Concentrations at Monitoring Locations (ug/m ³)				Calculated Dilution Factors ^a
		CAMU Station 2		Ellsworth north of 2nd Ave.	Ellsworth between 3rd and 4th Aves.	
6/23/2007	NE	36.2		1.8	0.3	20
6/26/2007	NE	69.3		0.3	2.7	231
6/29/2007	N	533.1	B	9.6	B	56
6/30/2007	N	485.1	B	10.7	B	45
7/24/2007	N	101.3		1.2	1.7	84
8/2/2007	E	351.9		3.1	0.5	114

Notes:

^a - Dilution Factor = CAMU Unit 2 concentration divided by concentration at Ellsworth north of 2nd Avenue.

Dilution Factor of 4 used in 2003 and 2007 AMOPs.

^b - Data used to estimate dilution factors taken from sampling dates reporting the highest concentrations of naphthalene at the CAMU.

B - Data qualifier indicating that naphthalene was reported in an associated blank sample.

Table 2 – Air Monitoring Sampling Location and Frequency

Parameter Group	CAMU Station 1 ^a	CAMU Station 2 ^a	CAMU Station 3 ^a	Ellsworth St. North of 2 nd Ave) ^b	Ellsworth St. between 3 rd and 4 th Aves. ^b
VOCs	daily	daily	daily	daily	daily
PM ₁₀ c	daily	daily	daily	NA	NA

Notes:

Samples collected only during periods of waste disposal in the CAMU.

Baseline monitoring will include the collection of total suspended solids and PM₁₀.

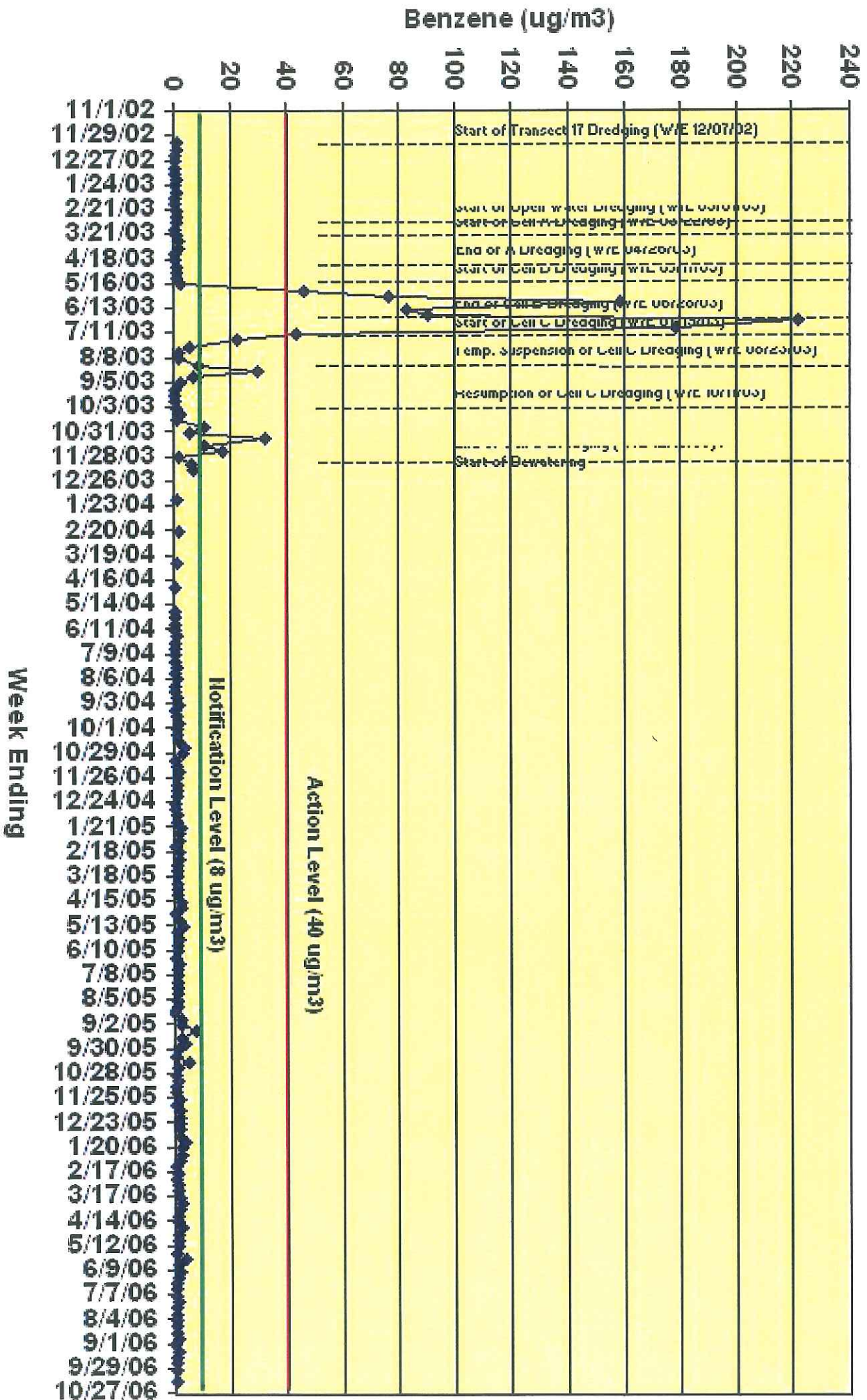
a - Depending on wind direction, data collected from CAMU stations 1 (located on the west berm), 2 (located on the south berm) and 3 (located on the east berm) may be used to estimate exposure for off-site workers and residents.

b – Residential monitoring will be continued as long deemed necessary by EPA and U.S. Steel.

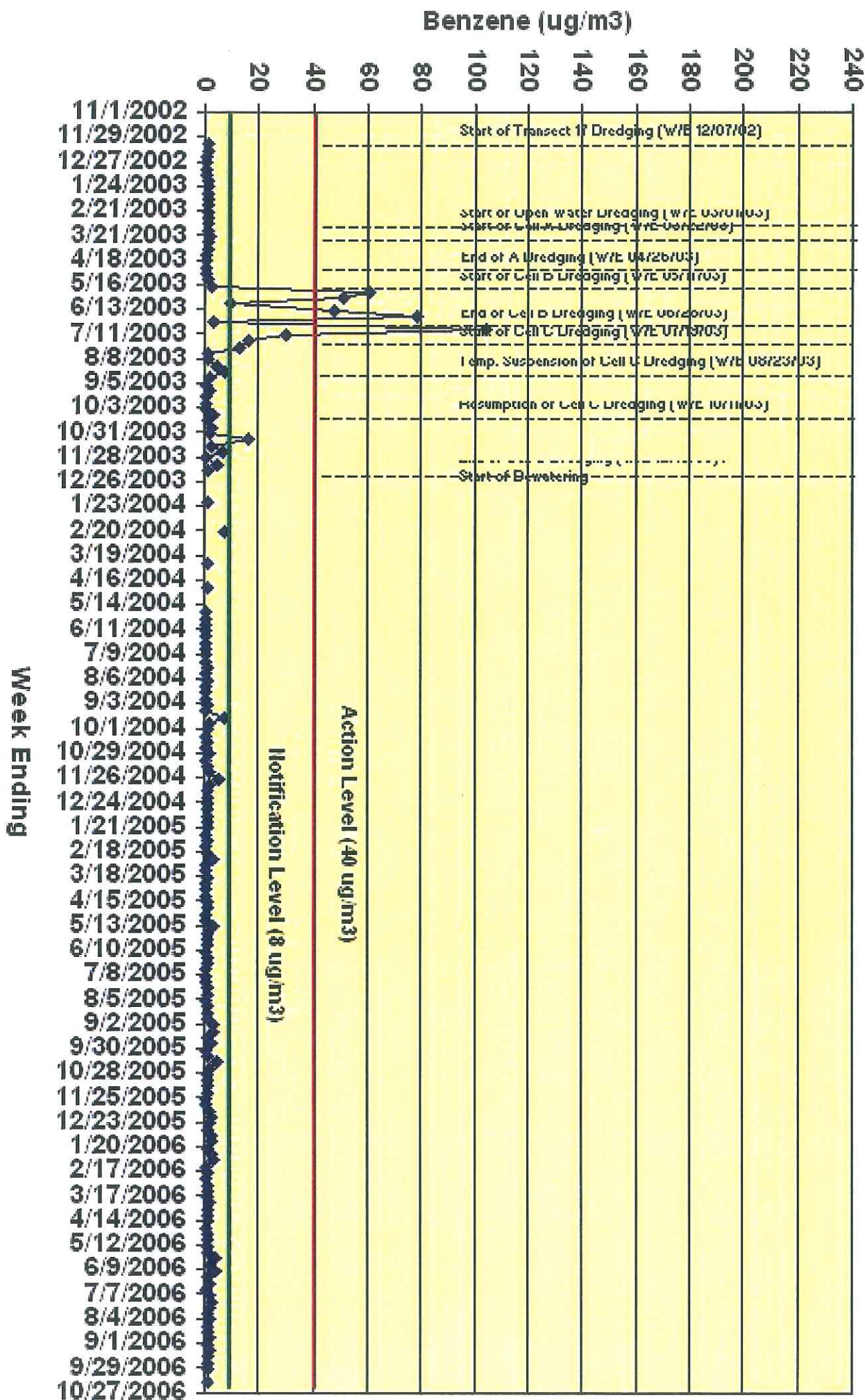
c - PM10 monitoring used as a surrogate for PCBs and metals.

NA – not analyzed.

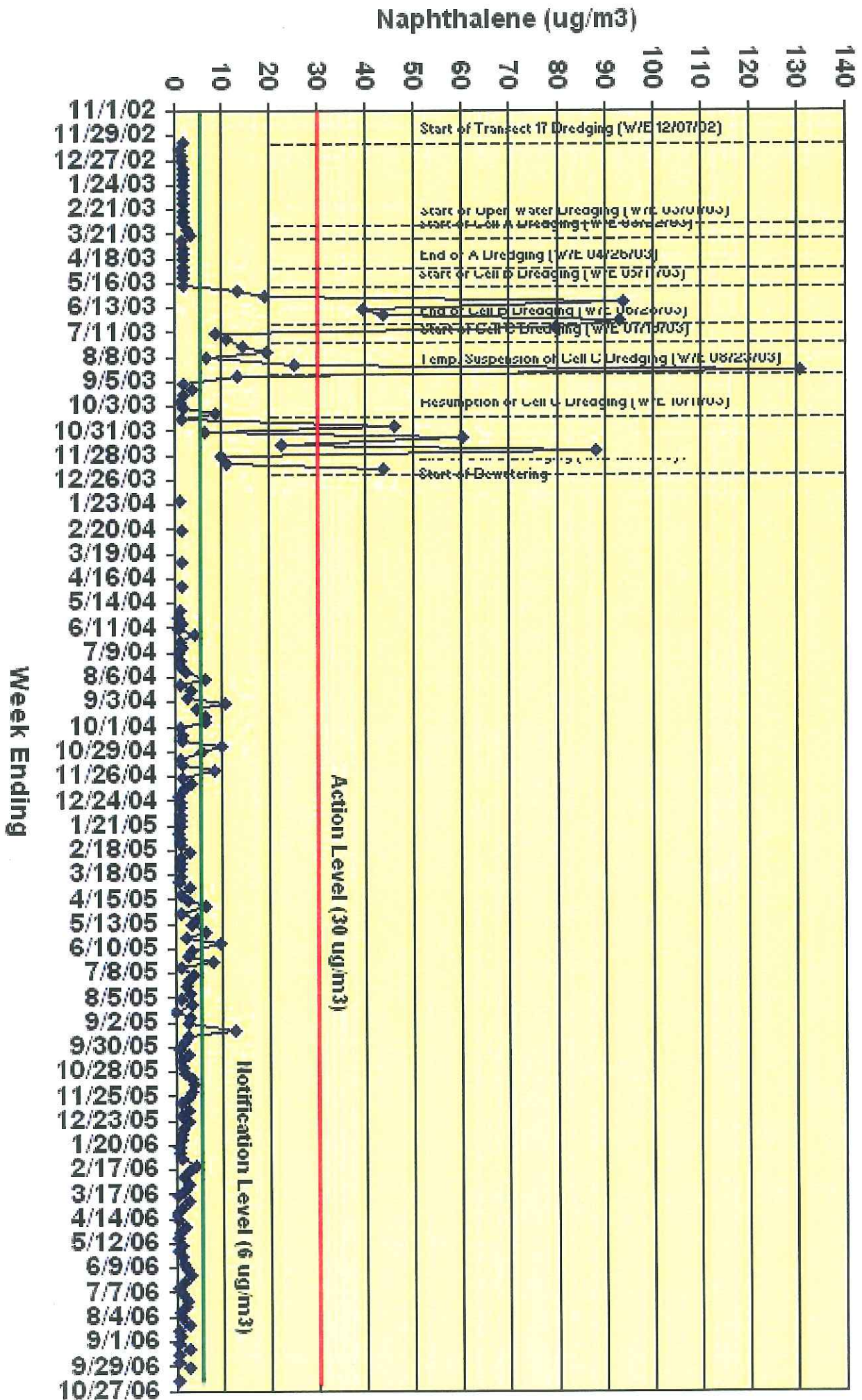
Air Monitoring Results from CAMU Station #1



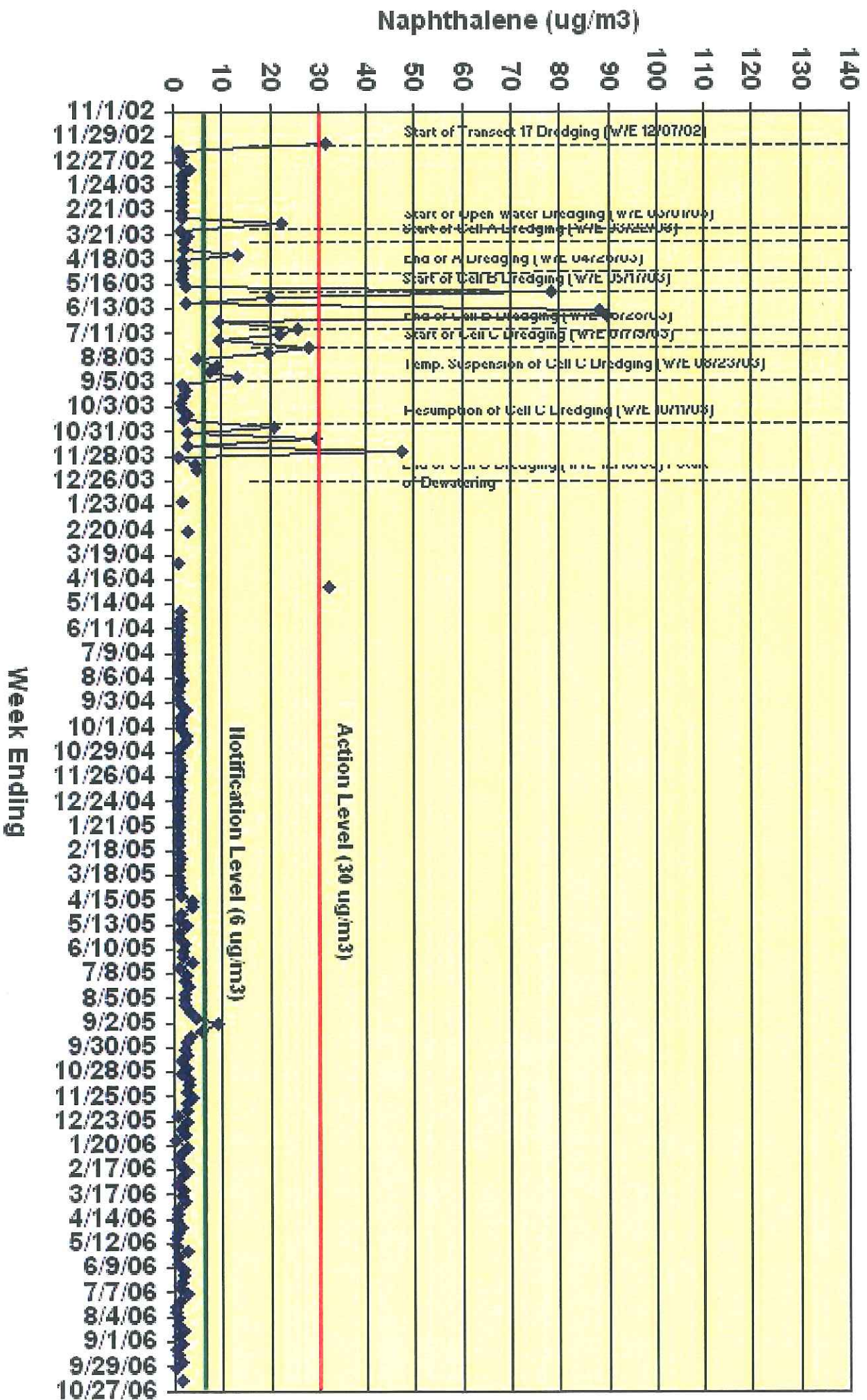
Air Monitoring Results from CAMU Stations #2/3

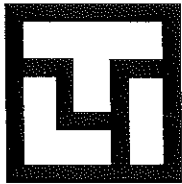


Air Monitoring Results from CAMU Station #1



Air Monitoring Results from CAMU Stations #2/3





T. Ohl

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TECHLAW INC.

RZ2.R05902.02.ID.240

March 21, 2003

Mr. Allen Wojtas
U.S. Environmental Protection Agency
Region 5 DM-7J
77 West Jackson Boulevard
Chicago, Illinois 60604

Reference: EPA Contract No. 68-W-02-019; EPA Work Assignment No. R05902; Corrective Action Support; U.S. Steel - Gary Works, Gary (USS), IN; EPA ID No. IND005444062; Technical Review of GCR Sediment Remediation Project Air Monitoring Program; Task 02 Deliverable

Dear Mr. Wojtas:

As requested, TechLaw has conducted an informal review of the U.S. Steel - Gary Works (USS) Air Monitoring Data and ambient air organic sampling results collected through Sampling Event 30. For your convenience, this deliverable and associated attachments were also E-mailed directly to you and Ms. Tamara Ohl in WordPerfect for Windows and Adobe PDF format respectively.

The review consisted, in part, of an analysis of wind speed and wind direction for the meteorological data collected at USS between 7/14/02 and 01/17/03 and organic concentration data from the 30 sampling events conducted (approximately) weekly between 8/26/02 and 01/17/03. The meteorological data, along with sampling events 1 to 15, and sampling events 16 through 18 at the Isolation Cell [IC] site only, were intended to establish background conditions. Sampling events 16 to 30, other than (events 16 through 18) at the IC site, were intended to monitor dredging conditions for the Grand Calumet River Dredging Project. A previous letter deliverable, dated December 20, 2002, focused on Sampling Events 1 through 8. While these events are considered in this review, more attention is devoted to Sampling Events 9 through 30. The review also included an analysis of the concentration data to determine what, if any, conclusions could be drawn from it.



All wind data used in the analyses were processed using the wind rose plotting program (WRPLOT). The analyses appear in the four attachments to this report:

- Attachment 1 presents the analysis for the meteorological data from July 14, 2002 to January 17, 2003;
- Attachment 2 contains the analyses of the baseline sampling events during which an exceedance was reported at the corrective action management unit (CAMU) and IC sampling sites;
- Attachment 3 contains the analyses of the dredging sampling events during which an exceedance was reported at the CAMU and IC sampling sites;
- Attachment 4 is the analysis for sampling events during which naphthalene, benzene and benzo(a)pyrene exceedances were reported.

Significant observations made during TechLaw's review include:

- Exceedances, mostly of the notification levels, were reported for ten of the fifteen baseline sampling events and seven of the fifteen dredging sampling events. No sampling event resulted in exceedances at both the CAMU 2 and IC sites, but sampling event 18 resulted in an exceedance of naphthalene at the CAMU 2 and 3 sites, and an exceedance of benzene at the IC sites.
 - For the baseline sampling, the maximum benzene concentration of 35.7 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$] reported for events 5 and 8 approached the action level of 40 $\mu\text{g}/\text{m}^3$; and the naphthalene concentrations of 51.7 and 42.2 $\mu\text{g}/\text{m}^3$ reported for sampling events 10 and 15 exceeded the action level of 30 $\mu\text{g}/\text{m}^3$.
 - For the dredging sampling, the benzene concentrations of 45.5 and 52.0 $\mu\text{g}/\text{m}^3$ reported for the dredging sampling events 30 and 31 exceeded the action level of 40 $\mu\text{g}/\text{m}^3$ and the maximum naphthalene concentration of 229.2 $\mu\text{g}/\text{m}^3$ reported for the dredging sampling event 17 exceeded the action level of 30 $\mu\text{g}/\text{m}^3$.
- The exceedances for benzene and naphthalene were associated with winds predominantly from the west and north but there is little correlation between concentrations of the two parameters tending to indicate that they do not likely originate from the same source. The exceedances could not be correlated with specific wind directions occurring during the sampling or with the day of the week.

- Naphthalene concentrations were determined by both the SUMA (TO-14A) and Hi-Vol/PUF (TO-13A) sampling methods. The SUMA results sometimes agreed with the Hi-Vol/PUF results but were frequently an order of magnitude or more higher. All of the reported exceedances (7 averaging $24.1 \mu\text{g}/\text{m}^3$) were based on the SUMA results while the Hi-Vol/PUF for those days results averaged $1.1 \mu\text{g}/\text{m}^3$. No explanation for the difference in results from the two methods has been found, but the accuracy of the naphthalene values is called into question.
- Analysis of baseline wind direction data and monitored concentrations leads to the conclusion that if the observed benzene and naphthalene exceedances are not caused by a sampling or analytical contamination problem, they may be the result of discontinuous emissions of benzene and naphthalene from multiple sources not connected with the dredging. It has not been possible to identify these sources or to determine their location.
- Analysis of the frequency distribution of the baseline concentrations of benzene and naphthalene (as measured by the SUMA method) showed background concentrations of approximately $1.5 \mu\text{g}/\text{m}^3$ with spikes usually between $10 \mu\text{g}/\text{m}^3$ and $40 \mu\text{g}/\text{m}^3$. Both the benzene and naphthalene concentrations show a major peak at about $1.5 \mu\text{g}/\text{m}^3$ and benzene shows a secondary peak at approximately $30 \mu\text{g}/\text{m}^3$ whereas the naphthalene shows only scattered high concentrations. This type of distribution will make it difficult, if not impossible, to determine the contribution of the dredging operations to the total concentrations.
- While it is not possible to directly compare the concentrations determined by the residential area sampling with those developed by the dispersion modeling and risk assessment, a superficial comparison notes that the highest benzene concentration found occurred on a day when the wind was out of the south and the lowest concentration was on a day when the wind was out of the north. Even the lowest of these concentrations was higher than the modeled concentration, since the model predicts incremental exposure from the dredging operations and the measured concentrations are a composite of total exposure.
- Except for the most elevated naphthalene concentrations found on December 4, 2002, the organic concentrations found at the CAMU during the early dredging operations are not significantly different than those found during the baseline sampling.
- It has been concluded that the USS request to increase the notification and action limits for the IC site is technically valid. The notification levels are intended to warn of concentrations at a critical receptor that may exceed a 1×10^{-6} risk-based limit. Since the original limits were calculated based on the distance to the nearest receptor to the CAMU

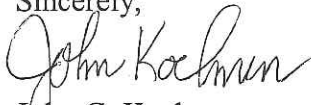
Mr. Allen Wojtas
March 21, 2003
Page 4

site, and this distance does not apply to the IC site, a change to bring the notification and action limits for both sites to the same risk basis for the respective receptors appears to be appropriate. If U.S. EPA approves this request the frequency of reported exceedances from the IC site should drop dramatically.

- Analysis of GCR sediments identified Arochlor 1248 and 1254 as present in the river sediments. Arochlor 1248 and 1242 are being monitored in the air monitoring program. It is not clear why USS is not analyzing for Arochlor 1254.

Please feel free to contact either myself, Ms. Ann Anderson at (312)345-8921 or Mr. Terry Uecker at (312) 345-8974 if you have any questions.

Sincerely,



John G. Koehnen
Regional Project Manager

cc:

F. Norling, U.S. EPA Region 5, w/o attachments
T. Ohl, U.S. EPA Region 5
B. Smith, Central Files

T. Uecker
A. Anderson
Chicago Central Files

**TECHNICAL REVIEW OF
GCR SEDIMENT REMEDIATION PROJECT
AIR MONITORING PROGRAM**

**U.S. STEEL - GARY WORKS
GARY, INDIANA
EPA ID No. IND005444062**

Submitted to:

**Mr. Allen Wojtas
U.S. Environmental Protection Agency
Region 5 DM-7J
77 West Jackson Boulevard
Chicago, Illinois 60604**

Submitted by:

**TechLaw, Inc.
105 W. Madison
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Contract No.	68-W-02-019
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March 21, 2003

**TECHNICAL REVIEW OF
GCR SEDIMENT REMEDIATION PROJECT
AIR MONITORING PROGRAM**

**U.S. STEEL - GARY WORKS
GARY, INDIANA
EPA ID No. IND005444062**

The main objective of this assessment is to evaluate the air monitoring program associated with the U.S. Steel (USS) Grand Calumet River (GCR) Sediment Remediation Project. TechLaw has reviewed air monitoring results from the baseline sampling events 1 to 15, which were conducted from August 26, 2002 to November 11, 2002. Air samples were collected from the CAMU 2 site and the IC site during the baseline sampling. The first phase of the dredging was conducted at Transect 17 from December 4 through December 18, 2002. The dredging sampling events 16 to 30 were conducted from December 4, 2002 to January 17, 2003. Air samples were collected from the CAMU 1, 2 and 3 sites, and the IC site during the dredging sampling. In support of this evaluation, TechLaw reviewed the Air Monitoring and Operations Plan, and recent submittals in support of USS's request to modify notification and action levels at the isolation cell monitoring station.

All wind data used in the analyses were processed using the wind rose plotting program (WRPLOT). The analyses appear in the four attachments to this report:

- Attachment 1 presents the analysis for the meteorological data from July 14, 2002 to January 17, 2003;
- Attachment 2 contains the analyses of the baseline sampling events during which an exceedance was reported at the corrective action management unit (CAMU) and IC sampling sites;
- Attachment 3 contains the analyses of the dredging sampling events during which an exceedance was reported at the CAMU and IC sampling sites;
- Attachment 4 is the analysis for sampling events during which naphthalene, benzene and benzo(a)pyrene exceedances were reported.

Compounds Being Monitored

The USS air monitoring program for the GCR Sediment Remediation Project is based on constituents known to be present in the river sediments. The sediments were characterized in the Sediment Characterization Study, U.S. Steel, Gary, Indiana, by Floyd Browne Associates, Inc. dated January 22, 1993. In this study, USS analyzed the sediment for a list of organic compounds including 16 polynuclear aromatics (PNAs), 7 polychlorinated biphenyls (PCBs), 21 semi-volatile organic constituents (SVOCs) and 33 volatile organic constituents (VOCs), but

could speciate less than 10% of the total organic carbon (TOC) detected. The large amount of oil and grease detected suggests that petroleum hydrocarbons may also be present. Many halogenated SVOCs were omitted from the analyte list but those are unlikely to be present in coke plant effluents. The analytical list for the sediments was found to be appropriate.

The air monitoring program is monitoring for 23 organic compounds. These include all of the compounds that were detected during the sediment characterization study with only two exceptions. First, chlorodibromomethane was found in the sediment but is not being analyzed for during the monitoring. Brominated compounds would not be expected to be present in coke plant effluents, and this compound could be attributed to contamination. Second, USS analyzed for Aroclor 1016, 1221, 1232, 1242, 1248, 1254 and 1260, and total Aroclors, in the sediment characterization study and detected only Aroclor 1248 and 1254. However, Aroclor 1248 and 1242 are being determined during the air monitoring. In spite of not being detected in the sediment, Aroclor 1242 is frequently detected at low levels in the air samples. It is not clear why USS is not analyzing for Aroclor 1254.

Since the air monitoring program is analyzing for all compounds (except Aroclor 1254 and chlorodibromomethane) that were detected in the sediment, the list of compounds being analyzed appears generally appropriate, but U.S. EPA may wish to request an explanation for the omission of Aroclor 1254 and consider having it added to the analyte list.

Sampling and Analysis Methodologies

Naphthalene is being determined by both the TO-14A (SUMA) and TO-13A (Hi-Vol/PUF) method. The results from the two methods sometimes (29% of the time) agreed with each other within an order of magnitude. However, the results disagreed by one to ten orders of magnitude 61% of the time and by over 10 orders of magnitude 10% of the time. Comparative values for the greatest differences are shown in Table 1. USS explains in the February 24, 2003, USS Revised Notification and Action Levels Response to Comments that the differences are due to differences in the two methods. However, this explanations are not considered conclusive. USS reports that the quality control (QC) samples and data verification efforts have not yielded any explanation. This seems to indicate that the analytical results are valid and high concentrations of benzene and naphthalene are, in fact, occasionally present at the Isolation Cell (IC) site.

Efforts to find other sources or explanations for the periodic high concentrations have not been successful. It is possible as USS suggests, but not considered likely, that steep concentration gradients near the samplers is possibly caused by nearby vehicle exhaust is the source of the exceedances. Other organics emitted by internal combustion engines do not increase proportionally to the benzene and naphthalene during the periods of high concentrations.

Currently, USS is reporting the SUMA data for naphthalene and ignoring the lower value produced by the Hi-Vol/PUF method. This is the conservative approach but the difference remains to be explained. U.S. EPA may wish to consult with analytical experts at the Research Triangle Park laboratories on this subject.

Table 1: Comparison of Sampling Results for Naphthalene Exceedances by SUMA and Hi-Vol/PUF Methods ($\mu\text{g}/\text{m}^3$)

Sample	Sampling Date	Sampling Location	SUMA	Hi-Vol/PUF
1	08/26/02 - 08/27/02	IC	18.66	1.3109
2	09/03/02 - 09/04/02	CAMU 2	9.063	0.1772
4	09/18/02 - 09/19/02	CAMU 2	10.66	0.0031
5	09/26/02 - 09/27/02	IC	21.32	1.5877
7	10/12/02 - 10/13/02	IC	14.39	0.0082
10	10/31/02 - 11/01/02	IC	51.71	2.3316
15	11/25/02 - 11/26/02	IC	43.18	0.4326
17	12/04/02 - 12/05/02	CAMU 1	14.93	<0.002
17	12/04/02 - 12/05/02	CAMU 3	229.2	0.1101
18	12/05/02 - 12/06/02	CAMU 3	12.79	0.0637

Precision and Accuracy

The analytical data submitted in the Excel database spreadsheets by USS for the baseline and early dredging sampling events presents the results with the number of significant figures varying from two to thirteen. It is not clear that the data presented has been prepared in accordance with accepted laboratory quality control practices for significant figures. This may simply be a problem with the settings in the spreadsheets used to tabulate the data; however, since these spreadsheets are probably part of the public record, an appropriate number of significant figures should be presented.

USS has not supplied any QC data for these analyses, but they report that all data has been validated. The validation report included in their response to comments does not indicate any significant precision or accuracy problems. The analytical laboratory report include results for chemicals that are not included in the data supplied to U.S. EPA.

Meteorological Data

Exceedances Reported during Baseline Sampling Events 1 to 15

The purpose of the baseline sampling was to establish the background levels of contaminants that were present in the ambient air before commencement of dredging activities. The baseline sampling events 1 to 15 were conducted from August 26, 2002 to November 11, 2002. Air samples were collected from the CAMU 2 site and the IC site during the baseline sampling.

There were seven naphthalene exceedances (five at the IC site and two at the CAMU site) during the 15 baseline sampling events, including five exceedances of the notification level and two exceedances of the action level. At the CAMU 2 site, exceedances of the notification level for naphthalene occurred during sampling events 2 and 4. Winds were generally out of the west to south quadrant during these events. At the IC there were three exceedances of the notification level and two exceedances of the action level for naphthalene, which occurred during sampling events 1, 5, 7, 10, and 15. The winds were out of the northeast, northwest or west during these periods.

The notification level for benzene was exceeded once at the CAMU 2 site and six times at the IC site during the baseline sampling. The action level for benzene was not exceeded during the baseline sampling. The notification level was exceeded at CAMU 2 site during sampling event 2 when winds were mostly out of the west or west-southwest. Winds were out of the north to west quadrant, the north to east quadrant or the south during exceedances at the IC unit.

The notification level for benzo(a)pyrene was exceeded once at the IC site during the baseline sampling during sampling event 3. The winds were out of the north-northeast and northeast at the time.

For the baseline sampling, exceedances did not occur during sampling events 6, 9, 12, 13 and 14. Winds were mainly out of the west quadrant during these periods

There was little consistency between the wind patterns during the exceedances. However, for the naphthalene exceedances, the winds were predominantly from the north and west quadrants; for benzene exceedances, the winds were predominantly from the west quadrant; and for the sampling events that did not exceed the notification or action levels, the winds were predominantly from the west and south quadrants. This matched the predominating wind patterns in the area. The lack of a correlation of exceedances with wind direction suggests that more than one source or a local diffuse source (e.g., contaminated soil) is responsible for the reported exceedances. Benzene and naphthalene are associated with combustion processes including gasoline and diesel engines. However, internal combustion engines are not likely to be the causes of the exceedances because the concentrations of other compounds, also released by these engines, do not usually increase proportionally to the benzene or naphthalene concentrations during exceedances.

Supporting the local source hypothesis is the fact that during events when the wind is predominantly out of the west, (blowing up the river from the CAMU site to the IC site, a distance of about 5000 meters) concentrations of benzene and naphthalene are frequently much higher at the IC site than at the CAMU site. This situation would result if the source of emissions was located between the two sampling points. It is also possible that the emission source is located to the northwest or southwest of the CAMU such that the plume would not spread sufficiently to be picked up at the CAMU site but would be picked up at the IC site.

The average concentrations in the OWIC samples taken at the CAMU 2 site between December 12, 2002 and February 19, 2003, as presented in USS's excel spreadsheets dated March 10, 2003, were not noticeably different from those taken during the baseline period. These are summarized in Table 2 below.

Table 2: Results of OWIC samples from CAMU

Compound (in $\mu\text{g}/\text{m}^3$)	CAMU avg. baseline	CAMU std dev baseline	CAMU OWIC avg.	CAMU OWIC std dev
Benzene	3.4	7.0	1.1	0.50
Ethylbenzene	1.7	0.28	1.4	0.26
Naphthalene (SUMA)	2.7	3.2	1.7	0.42
Naphthalene (PUF)	0.081	0.055	0.11	0.09
Phenanthrene	0.020	0.027	0.008	0.004
Toluene	2.9	2.1	1.7	0.94
Xylenes	5.2	11.0	2.8	0.48

Exceedances Reported during Dredging Sampling Events 16 to 30

The purpose of the sampling during dredging is to determine the levels of contaminants present in the ambient air during the dredging activities to which the nearby residences are exposed and to identify incidents of high concentrations which may result in significantly increased risk to the health of the nearby residences. The dredging sampling events 16 to 30 were conducted from December 4, 2002 to January 17, 2003. Air samples were collected from the CAMU 1, 2 and 3 sites, and the IC site during the dredging sampling. The dredging was done at Transect 17 during this period.

There were five naphthalene exceedances out of the 15 dredging sampling events, including four

exceedances of the notification level and one exceedance of the action level. Exceedances of the notification level were reported for naphthalene at CAMU 1 and 3 sites during sampling events 17 and 18. At CAMU 3 site, the action level for naphthalene was exceeded during the dredging sampling event 17. Wind was out of the southeast and south during sampling event 17, and out of the west-southwest and west for sampling event 18. At the IC, during the dredging sampling, two exceedances of the notification level for naphthalene occurred during sampling events 28 and 29. Wind was out of the west to north quadrant during these events.

On the first day of dredging, December 04, 2002, a naphthalene concentration of $229 \mu\text{g}/\text{m}^3$ (above the action level) was reported at the CAMU 3 site while nearby the CAMU 2 site reported only $1.07 \mu\text{g}/\text{m}^3$ and CAMU 1 site on the west side of the CAMU, reported $14.9 \mu\text{g}/\text{m}^3$. The wind was out of the southern quadrant most of that time. This indicates a very narrow, well defined, plume of vapors such as may be caused by a source very near to the Number 2 sampler, or possibly local atmospheric turbulence that carried the vapors out of the CAMU to only this, and not the other, sampler located on the upwind berm. Most of the other PNAs were reported as either below or slightly above detection levels and benzene was not elevated. These results make an internal combustion engine an improbable source. The PUF sampler reported naphthalene at $0.11 \mu\text{g}/\text{m}^3$ at the time. The most likely source of the emission would be the dredged material being discharged into the CAMU at the time. If the $229 \mu\text{g}/\text{m}^3$ reported for the SUMA sample is correct, it is difficult to explain why the PUF sample located nearby registered such a low value. It should be noted that it appears that a weekly average value was reported in the exceedance reports, rather than $229 \mu\text{g}/\text{m}^3$.

At the IC site, the notification level for benzene was exceeded twice during sampling events 18 and 27, and the action level was exceeded once at the IC during the dredging sampling. Winds were generally out of the western quadrant during these periods.

The notification level for benzo(a)pyrene was exceeded once at the IC during sampling event 30. Winds were out of the north to west quadrant during this period.

No exceedances occurred during events 16, 19, 20, 21, 22, 23, 24, 25 and 26. Winds were out of the north to east quadrant and the south to west quadrant during these periods.

There was more consistency between the wind patterns during the dredging sampling exceedances than during the baseline sampling. During the dredging sampling, the naphthalene and benzene exceedances were associated with winds out of the western quadrant. However, the winds during sampling events that did not exceed the notification or action levels did not exhibit a predominant wind direction. There are not enough data to attribute the benzene and naphthalene exceedances, associated with the winds out of the western quadrant, to the dredging activities or to some other source(s).

Naphthalene, Benzene and Benzo(a)pyrene Exceedances

Analysis of all exceedances from August 26, 2002 to January 17, 2003 shows that during the dredging operations, exceedances occurred mostly when the wind was from the west to north quadrant.

Receptors

USS has requested that the notification and action limits for the IC site be modified (raised). The notification levels are established to warn of concentrations that may cause the risk from all sources (background plus this project's emissions) to exceed 1×10^{-6} at the critical receptor. The original notification and action levels were calculated based on the distance to the critical receptor from the CAMU site and do not apply to the IC site where the distance to the critical receptor is greater. A change to bring the limits for both sites to the same basis appears to be appropriate. The worst case situation would be that the concentrations at the IC site were just below the new action level (increased by a factor of eight) for a long period. In such a case, the risk at the critical residential receptor nearest to the IC site would increase, but would still not exceed 1×10^{-6} and the risk to the critical receptor nearest the CAMU site would not change. The concentrations and risk to the off-site workers at the Roll Center, Inc. facility may also increase if the emissions from the IC site are significant. This issue was discussed in the recent meeting/teleconference call with USS. It has been concluded that the USS request to increase the notification and action limits for the IC site is technically valid, but the question of the increase in risk to an off-site worker at the Roll Center, Inc. facility should be formally documented.

The original dispersion and risk modeling considered a large number of residential receptors. They are located most densely just to the south of the river where the river lies south of the interstate highway and less densely further to the south, east or west. The critical receptor (the one at which the risks were calculated) is not shown but is described as the one closest to the source of most of the emissions (the CAMU). The nearest receptors are stated to be 190 meters (m) south of the CAMU and from 470 to 1400 m south of the dredging in Transects 1 to 11. Modeling results have not been supplied so the exact location of the critical receptors cannot be confirmed. There are no residences in directions from west through north to east. For winds out of the north, the wind rose shows winds from the north, north-northeast, and northeast to be most prevalent so the critical receptor may be displaced slightly to the west of the closest receptor due to the influence of the NE winds. Figure 2-6a (USS, Air Monitoring Plan (Task 26) Revised Notification and Action Levels, GCR Sediment Remediation Plan December 18, 2002) does not contain a sufficient number of isopleths to make a quantitative estimate of the location of the critical receptor but does indicate that it will be to the west of directly south. A more detailed Figure 2-6 has been requested but has not been provided.

The Air Monitoring and Operations Plan (AMOP) is not clear as to how the exposure of the on-site worker was modeled; however industrial hygiene monitoring of the exposure to on-site workers is to be conducted and respiratory protection can be provided if required. The on-site

workers will be exposed to the baseline concentrations just as all of the other receptors. Any contribution from the dredging is likely to vary considerably depending on the wind conditions and the location of the workers. Such exposures can not be accurately modeled and the worker's personnel monitoring must be relied upon.

Off-site industrial workers will be located in many nearby industries. The closest industries are Roll Center Inc. located just south of the dredging area, ISE located just west of the CAMU, and Select Beverage located just east of the CAMU. It appears that the selection of receptors was proper and the model should have allowed the identification of the most impacted receptors. Since no detailed modeling results were provided, it cannot be confirmed that the data presented were for the most impacted receptor.

Conclusions

Definitive correlations could not be made between reported exceedances, wind directions, and the day of sampling using the data available. Emissions from multiple external sources unrelated to the dredging operation may exert a dominant influence on the air monitoring results. There are not enough sampling data available to draw definitive conclusions on the meteorological conditions that lead to exceedances of specific compounds. In fact, the available data suggest that the exceedances are affected by source characteristics (discontinuous or intermittent emissions from the sources) as well as meteorological conditions.

In the February 24, 2003, USS Revised Notification and Action Levels Response to Comments, USS stated that after careful review of coke production, by-products processing and internal combustion engine use during the monitoring period, USS concluded that the episodes of elevated concentrations of benzene and naphthalene are not attributable to the operation of the Gary Coke Plant during that time period. The USS conclusion does not, however, identify any potential alternative source of the benzene and naphthalene exceedances.

It is not possible to directly compare the concentrations determined by the residential area grab sampling with those developed by the dispersion modeling for two reasons. First, the modeling for the risk assessment considered only the incremental concentrations contributed by the dredging operations while the sampling values are the total concentrations including both the baseline concentrations and the incremental concentrations contributed by the dredging. Second, the modeling results are a two year average concentration and the sampling results represent only a few minutes. However, a superficial comparison notes that the highest benzene concentration found occurred on a day when the wind was out of the south (209°) and the lowest concentration was on a day when the wind was out of the north (2°). Even the lowest of these concentrations (0.6 µg/m³) was, as might be expected based on discussion above, higher than the modeled concentration (0.057 µg/m³).

Since the wind was out of the south when the December 4, 2002 residential sample was taken, it did not show any impact due to the high naphthalene concentration reported by CAMU 3 sampler on that day.

Except for the very high naphthalene concentrations found on December 4, 2002, the organic concentrations found at the CAMU during the early dredging operations are not significantly different than those found during the baseline sampling. The benzene and naphthalene values match the $1.5 \mu\text{g}/\text{m}^3$ values for the background (excluding the excursions) mentioned above.

Analysis of the distribution of the baseline concentrations of benzene and naphthalene (as measured by the SUMA method) showed background concentrations of approximately $1.5 \mu\text{g}/\text{m}^3$ about 2/3 of the time with spikes usually between $10 \mu\text{g}/\text{m}^3$ and $40 \mu\text{g}/\text{m}^3$ the rest of the time. A frequency analysis of the benzene concentrations shows a major peak at about $1.5 \mu\text{g}/\text{m}^3$ and a secondary peak at approximately $30 \mu\text{g}/\text{m}^3$. A similar analysis of the naphthalene concentrations shows a peak at about $1.5 \mu\text{g}/\text{m}^3$ with scattered high concentrations but no secondary peak. This type of distribution will make it difficult, if not impossible, to determine the contribution of the dredging operations to the total concentrations except, perhaps, as a statistical probability based on a large number of samples.

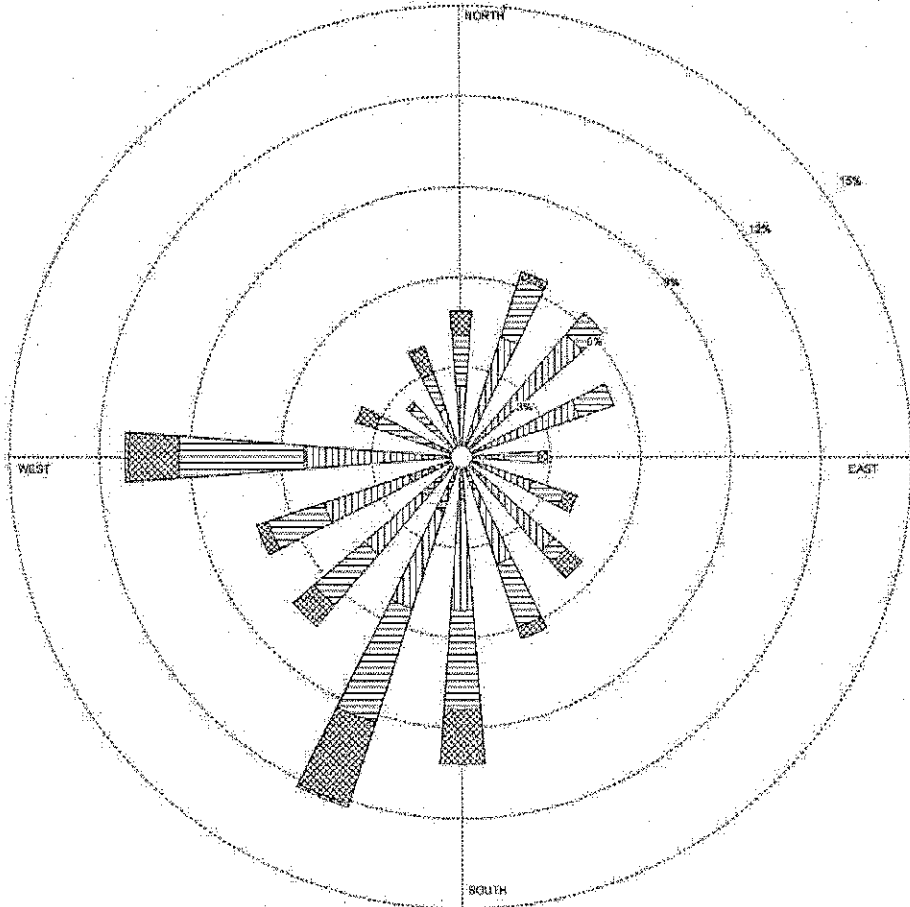
ATTACHMENT 1


Meteorological Data

**U.S. Steel Sampling
July 14, 2002 to January 17, 2003**

WIND ROSE PLOT

Station #05902 - U.S. Steel; Met Data - 07/14/02 to 01/17/03,



Wind Speed (Knots) 	MODELER John Finnell	DATE 3/18/2003	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS
	AVG. WIND SPEED 6.65 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 2002 Jan 1 - Dec 31 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan

RUN ID: U.S. Steel: Met Data -

Frequency Distribution (Count)							
	Speed (Knots)						
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	4	65	50	24	1	0	144
NNE	14	110	60	7	0	0	191
NE	32	127	27	0	0	0	186
ENE	25	98	36	0	0	0	159
E	9	33	34	9	0	0	85
ESE	18	56	33	13	0	0	120
SE	32	89	16	20	0	0	157
SSE	34	76	65	12	0	0	187
S	41	109	96	54	0	0	300
SSW	56	100	117	84	3	0	360
SW	51	75	65	27	0	0	218
WSW	54	88	57	12	0	0	211
W	18	136	122	48	4	0	328
WNW	6	25	58	20	0	0	109
NW	6	19	42	4	0	0	71
NWN	8	42	36	27	2	0	115
Total	408	1248	914	361	10	0	
Frequency of Calm Winds : 0%							
Average Wind Speed : 6.65 Knots							

RUN ID: U.S. Steel: Met Data -

RUN ID: U.S. Steel: Met Data -

RUN ID: U.S. Steel: Met Data -

RUN ID: U.S. Steel: Met Data -

RUN ID: U.S. Steel: Met Data -

Frequency Distribution (Normalized) Speed (Knots)							
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.001360	0.022101	0.017001	0.008160	0.000340	0.000000	0.048963
NNE	0.004760	0.037402	0.020401	0.002380	0.000000	0.000000	0.064944
NE	0.010881	0.043183	0.009181	0.000000	0.000000	0.000000	0.063244
ENE	0.008501	0.033322	0.012241	0.000000	0.000000	0.000000	0.054063
E	0.003060	0.011221	0.011561	0.003060	0.000000	0.000000	0.028902
ESE	0.006120	0.019041	0.011221	0.004420	0.000000	0.000000	0.040802
SE	0.010881	0.030262	0.005440	0.006800	0.000000	0.000000	0.053383
SSE	0.011561	0.025842	0.022101	0.004080	0.000000	0.000000	0.063584
S	0.013941	0.037062	0.032642	0.018361	0.000000	0.000000	0.102006
SSW	0.019041	0.034002	0.039782	0.028562	0.001020	0.000000	0.122407
SW	0.017341	0.025502	0.022101	0.009181	0.000000	0.000000	0.074124
WSW	0.018361	0.029922	0.019381	0.004080	0.000000	0.000000	0.071744
W	0.006120	0.046243	0.041482	0.016321	0.001360	0.000000	0.111527
WNW	0.002040	0.008501	0.019721	0.006800	0.000000	0.000000	0.037062
NW	0.002040	0.006460	0.014281	0.001360	0.000000	0.000000	0.024141
NNW	0.002720	0.014281	0.012241	0.009181	0.000680	0.000000	0.039102
Total	0.138728	0.424345	0.310779	0.122747	0.003400	0.000000	
Frequency Calm Winds : 0.00							
Average Wind Speed : 6.65 Knots							

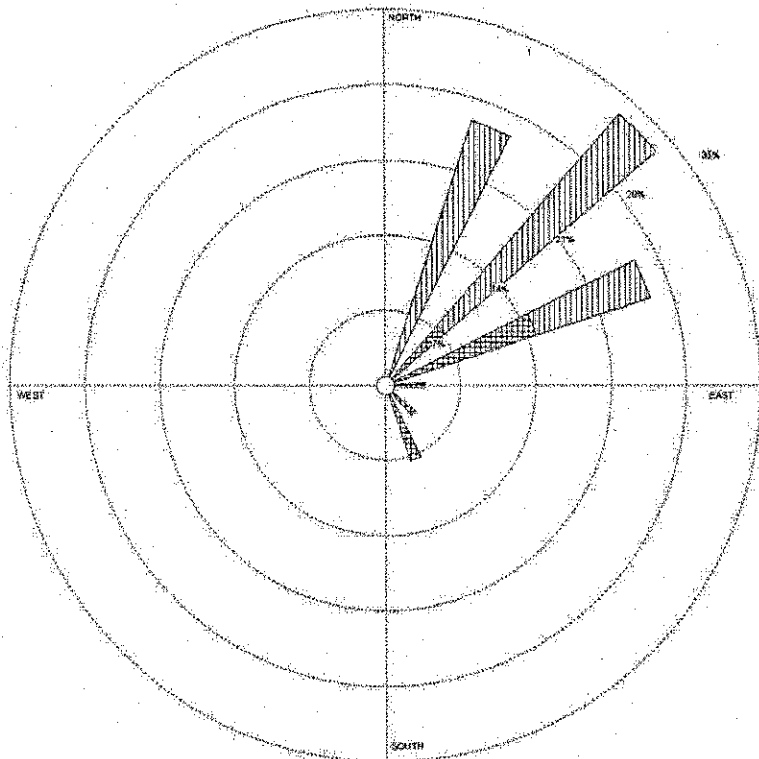
ATTACHMENT 2

Meteorological Data

**U.S. Steel Sampling
Baseline Exceedances 1 to 15
July 14, 2002 to December 1, 2003**

WIND ROSE PLOT

Station #05902 - U.S. Steel - Gary Works; Event No. 1



<p>Wind Speed (Knots)</p>	MODELER John Farnell	DATE 12/3/2002	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS Aug. 26, 2002, 1500 hours to Aug. 27, 2002, 1700 hours 33-foot meteorological tower
	AVG. WIND SPEED 4.48 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR/DATE/TIME 2002 Aug 26 - Aug 27 Midnight - 11 PM	PROJECT/LOT NO. Air Monitoring/Operation Plan

WINDPLOT V4.00 by TechLaw Environmental Software - www.techlawenvironment.com

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 1

Year: 2002

Date Range: Aug 26 - Aug 27

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0	0	0	0	0	0	0
NNE	0	7	0	0	0	0	7
NE	2	7	0	0	0	0	9
ENE	4	3	0	0	0	0	7
E	1	0	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	1	0	0	0	0	0	1
SSE	2	0	0	0	0	0	2
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	10	17	0	0	0	0	

Frequency of Calm Winds: 0%

Average Wind Speed: 4.48 Knots

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 1

Year: 2002

Date Range: Aug 26 - Aug 27

Time Range: Midnight - 11 PM

Frequency Distribution

(Normalized)

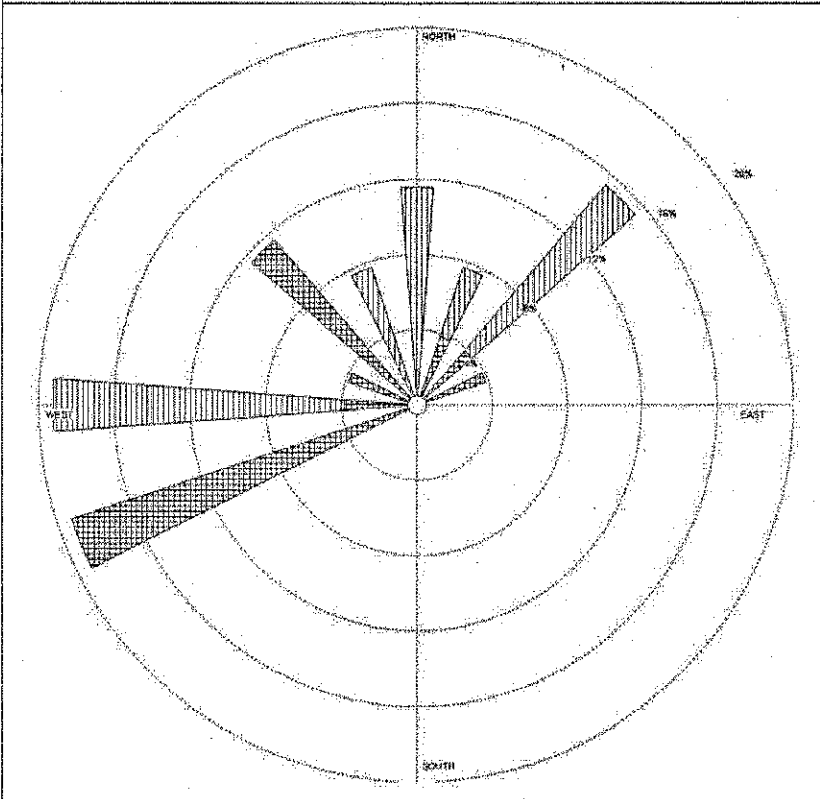
Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.259259	0.000000	0.000000	0.000000	0.000000	0.259259
NE	0.074074	0.259259	0.000000	0.000000	0.000000	0.000000	0.333333
ENE	0.148148	0.111111	0.000000	0.000000	0.000000	0.000000	0.259259
E	0.037037	0.000000	0.000000	0.000000	0.000000	0.000000	0.037037
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.037037	0.000000	0.000000	0.000000	0.000000	0.000000	0.037037
SSE	0.074074	0.000000	0.000000	0.000000	0.000000	0.000000	0.074074
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.370370	0.629630	0.000000	0.000000	0.000000	0.000000	

Frequency Calm Winds: 0.00

Average Wind Speed: 4.48 Knots

WIND ROSE PLOT
 Station #05902 - U.S. Steel - Gary Works; Event No. 2



Wind Speed ranges 0-21 22-25 26-30 31-35 36-40 41-45	MODELER John Finnell	DATE 12/3/2002	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS Sep. 3, 2002, 1000 hours to Sep. 4, 2002, 1100 hours 33-foot meteorological tower
	AVG. WIND SPEED 3.50 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR DATE TIME 2002 Sep 3 - Sep 4 Midnight - 11 PM	PROJECT/PLOT ID Air Monitoring/Operation Plan

WINDPLOT V10W 3.3 by Camille Evers/Environmental Software - www.techlaw.com/techlaw.html

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 2

Year: 2002

Date Range: Sep 3 - Sep 4

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0	3	0	0	0	0	3
NNE	1	1	0	0	0	0	2
NE	1	3	0	0	0	0	4
ENE	1	0	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	5	0	0	0	0	0	5
W	1	4	0	0	0	0	5
WNW	1	0	0	0	0	0	1
NW	3	0	0	0	0	0	3
NNW	0	2	0	0	0	0	2
Total	13	13	0	0	0	0	

Frequency of Calm Winds: 0%

Average Wind Speed: 3.50 Knots

Station ID: 05902 RUN ID: U.S. Steel - Gary Works; Event No. 2
 Year: 2002
 Date Range: Sep 3 - Sep 4
 Time Range: Midnight - 11 PM

Frequency Distribution

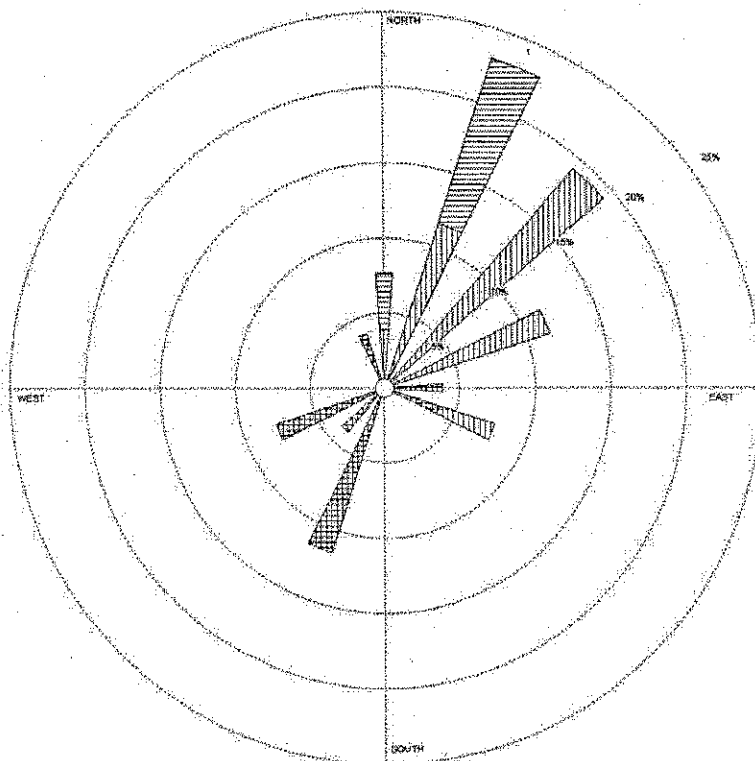
(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.000000	0.115385	0.000000	0.000000	0.000000	0.000000	0.115385
NNE	0.038462	0.038462	0.000000	0.000000	0.000000	0.000000	0.076923
NE	0.038462	0.115385	0.000000	0.000000	0.000000	0.000000	0.153846
ENE	0.038462	0.000000	0.000000	0.000000	0.000000	0.000000	0.038462
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.192308	0.000000	0.000000	0.000000	0.000000	0.000000	0.192308
W	0.038462	0.153846	0.000000	0.000000	0.000000	0.000000	0.192308
WNW	0.038462	0.000000	0.000000	0.000000	0.000000	0.000000	0.038462
NW	0.115385	0.000000	0.000000	0.000000	0.000000	0.000000	0.115385
NNW	0.000000	0.076923	0.000000	0.000000	0.000000	0.000000	0.076923
Total	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	

Frequency Calm Winds: 0.00
 Average Wind Speed: 3.50 Knots

WIND ROSE PLOT
 Station #05902 - U.S. Steel - Gary Works; Event No. 3



Wind Speed (knots)	MODELER: John Finnell	DATE 12/3/2002	COMPANY NAME TechLaw, Inc.
<div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-right: 5px;"></div> <div> >21 17-21 11-16 7-10 4-6 1-3 </div> </div>	DISPLAY Wind Speed AVERAGE WIND SPEED 4.38 Knots	UNIT Knots CALM WINDS 0.00%	COMMENTS Sep. 11, 2002, 1100 hours to Sep. 12, 2002, 1200 hours 33-foot meteorological tower
ORIENTATION Direction (blowing from)	PLOT YEAR/DATE/TIME 2002 Sep 11 - Sep 12 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan	

WINDROSE: Ver. 3.0 by CLIMAX CONSULTING INC. Copyright © 1998-2002 CLIMAX CONSULTING INC.

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 3

Year: 2002

Date Range: Sep 11 - Sep 12

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0	1	1	0	0	0	2
NNE	0	3	3	0	0	0	6
NE	0	5	0	0	0	0	5
ENE	0	3	0	0	0	0	3
E	1	0	0	0	0	0	1
ESE	1	1	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	3	0	0	0	0	0	3
SW	1	0	0	0	0	0	1
WSW	2	0	0	0	0	0	2
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	1	0	0	0	0	0	1
Total	9	13	4	0	0	0	

Frequency of Calm Winds: 0%

Average Wind Speed: 4.38 Knots

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 3

Year: 2002

Date Range: Sep 11 - Sep 12

Time Range: Midnight - 11 PM

Frequency Distribution

(Normalized)

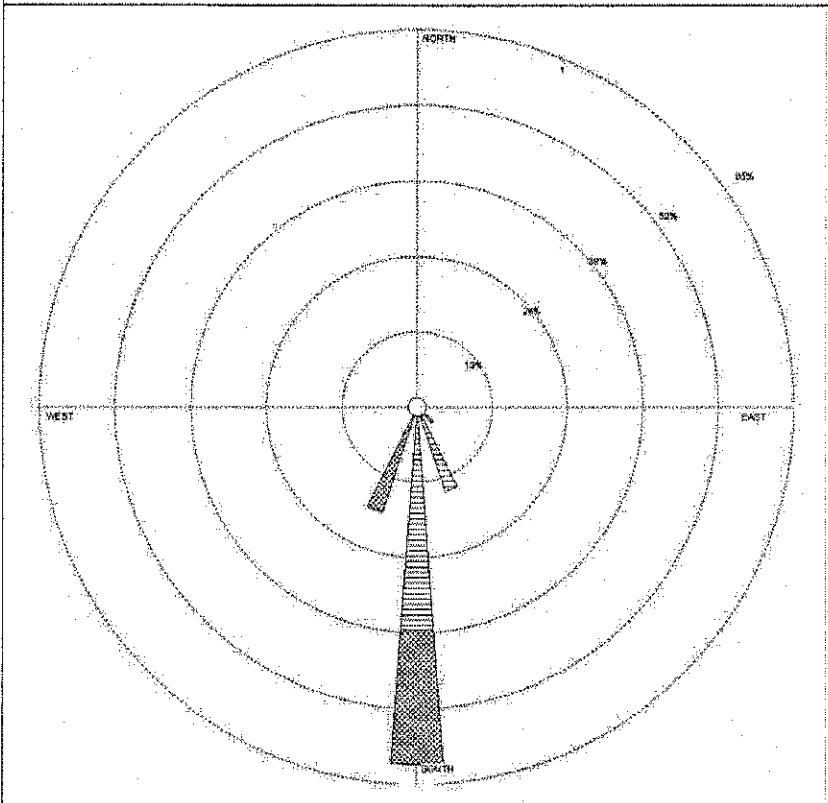
Wind Direction (Blowing From) / Wind Speed (Knots)


	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.000000	0.038462	0.038462	0.000000	0.000000	0.000000	0.076923
NNE	0.000000	0.115385	0.115385	0.000000	0.000000	0.000000	0.230769
NE	0.000000	0.192308	0.000000	0.000000	0.000000	0.000000	0.192308
ENE	0.000000	0.115385	0.000000	0.000000	0.000000	0.000000	0.115385
E	0.038462	0.000000	0.000000	0.000000	0.000000	0.000000	0.038462
ESE	0.038462	0.038462	0.000000	0.000000	0.000000	0.000000	0.076923
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.115385	0.000000	0.000000	0.000000	0.000000	0.000000	0.115385
SW	0.038462	0.000000	0.000000	0.000000	0.000000	0.000000	0.038462
WSW	0.076923	0.000000	0.000000	0.000000	0.000000	0.000000	0.076923
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.038462	0.000000	0.000000	0.000000	0.000000	0.000000	0.038462
Total	0.346154	0.500000	0.153846	0.000000	0.000000	0.000000	

Frequency Calm Winds: 0.00

Average Wind Speed: 4.38 Knots

WIND ROSE PLOT
 Station #05902 - U.S. Steel - Gary Works; Event No. 4



Wind Speed (Knots) 	MODELER John Finnell	DATE 12/3/2002	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS Sep. 18, 2002, 1400 hours to Sep. 19, 2002, 1500 hours 33-foot meteorological tower
	AVERAGE WIND SPEED 9.82 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR/DATE/TIME 2002 Sep 18 - Sep 19 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 4

Year: 2002

Date Range: Sep 18 - Sep 19

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	1
SSE	0	1	3	0	0	0	4
S	0	0	10	6	0	0	16
SSW	0	0	1	4	0	0	5
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	1	15	10	0	0	

Frequency of Calm Winds: 0%

Average Wind Speed: 9.62 Knots

Station ID: 01804

RUN ID: U.S. Steel - Gary Works; Event No. 4

Year: 2002

Date Range: Sep 18 - Sep 19

Time Range: Midnight - 11 PM

Frequency Distribution

(Normalized)

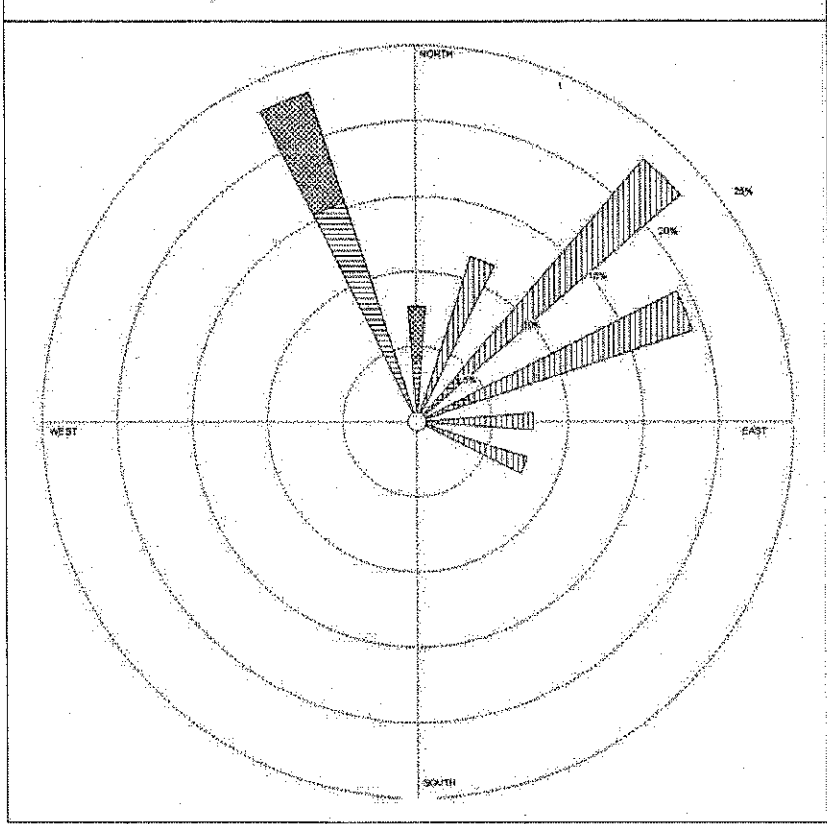
Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.038462	0.000000	0.000000	0.000000	0.038462
SSE	0.000000	0.038462	0.115385	0.000000	0.000000	0.000000	0.153846
S	0.000000	0.000000	0.384615	0.230769	0.000000	0.000000	0.615385
SSW	0.000000	0.000000	0.038462	0.153846	0.000000	0.000000	0.192308
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.038462	0.576923	0.384615	0.000000	0.000000	

Frequency Calm Winds: 0.00

Average Wind Speed: 9.62 Knots

WINDRISE PLOT
 Station #05802 - U.S. Steel - Gary Works; Event No. 5



Wind Speed (Knots)	MODELER John Finnell	DATE 12/3/2002	COMPANY NAME TechLaw, Inc.
<div data-bbox="365 1228 414 1417" data-label="Figure"> </div>	DISPLAY Wind Speed	UNIT Knots	COMMENTS Sep. 26, 2002, 1500 hours to Sep. 27, 2002, 1800 hours 33-foot meteorological tower
	AVG. WIND SPEED 6.04 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR/DATE/TIME 2002 Sep 26 - Sep 27 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 5

Year: 2002

Date Range: Sep 26 - Sep 27

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0	0	1	1	0	0	2
NNE	0	3	0	0	0	0	3
NE	1	5	0	0	0	0	6
ENE	1	4	0	0	0	0	5
E	0	2	0	0	0	0	2
ESE	0	2	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	4	2	0	0	6
Total	2	16	5	3	0	0	

Frequency of Calm Winds: 0%

Average Wind Speed: 6.04 Knots

Station ID: 05902 RUN ID: U.S. Steel - Gary Works; Event No. 5
 Year: 2002
 Date Range: Sep 26 - Sep 27
 Time Range: Midnight - 11 PM

Frequency Distribution

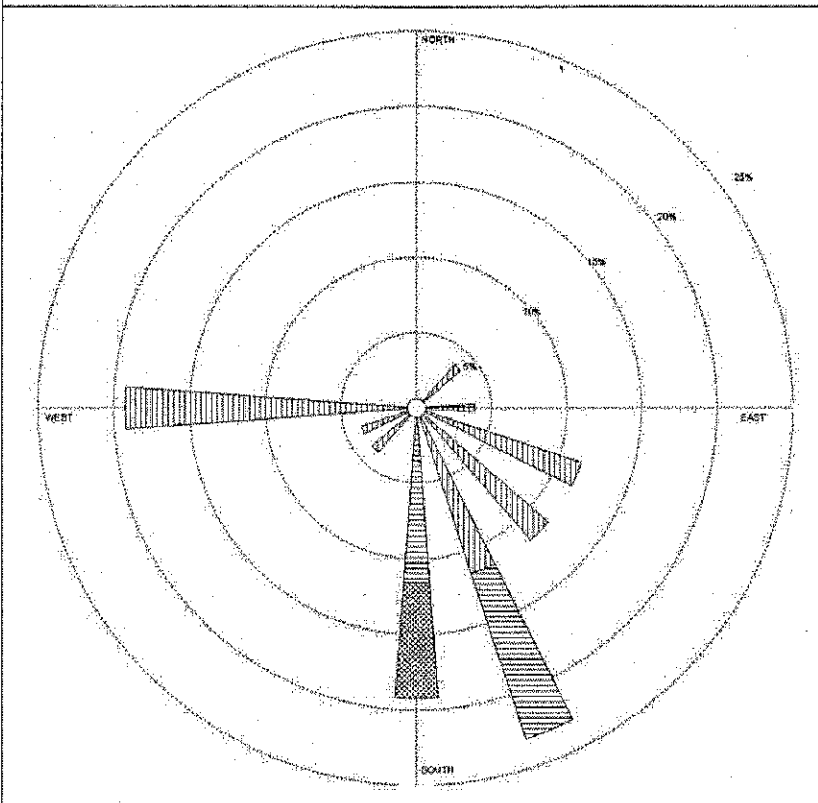
(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.000000	0.000000	0.038462	0.038462	0.000000	0.000000	0.076923
NNE	0.000000	0.115385	0.000000	0.000000	0.000000	0.000000	0.115385
NE	0.038462	0.192308	0.000000	0.000000	0.000000	0.000000	0.230769
ENE	0.038462	0.153846	0.000000	0.000000	0.000000	0.000000	0.192308
E	0.000000	0.076923	0.000000	0.000000	0.000000	0.000000	0.076923
ESE	0.000000	0.076923	0.000000	0.000000	0.000000	0.000000	0.076923
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.153846	0.076923	0.000000	0.000000	0.230769
Total	0.076923	0.615385	0.192308	0.115385	0.000000	0.000000	

Frequency Calm Winds: 0.00
 Average Wind Speed: 6.04 Knots

Station #05902 - U.S. Steel - Gary Works; Event No. 8



	MODELER John Finnell	DATE 12/3/2002	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS Oct. 5, 2002, 0900 hours to Oct. 8, 2002, 1000 hours 33-foot meteorological tower
	AVG. WIND SPEED 8.35 Knots	CALC WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR/DATETIME 2002 Oct 5 - Oct 8 Midnight - 11 PM	PROJECT/NOTING Air Monitoring/Operation Plan

WORLD WIDE ITIL BOOK STORES WITH TOPICS: www.itil-all.com/index.html

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 6

Year: 2002

Date Range: Oct 5 - Oct 6

Time Range: Midnight - 11 PM

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	3	0	0	0	0	3
SE	0	3	0	0	0	0	3
SSE	0	3	3	0	0	0	6
S	0	0	3	2	0	0	5
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	1	0	0	0	0	1
W	0	5	0	0	0	0	5
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	1	17	6	2	0	0	

Frequency of Calm Winds : 0%

Average Wind Speed : 6.35 Knots

Station ID: 05902 RUN ID: U.S. Steel - Gary Works; Event No. 6
 Year: 2002
 Date Range: Oct 5 - Oct 6
 Time Range: Midnight - 11 PM

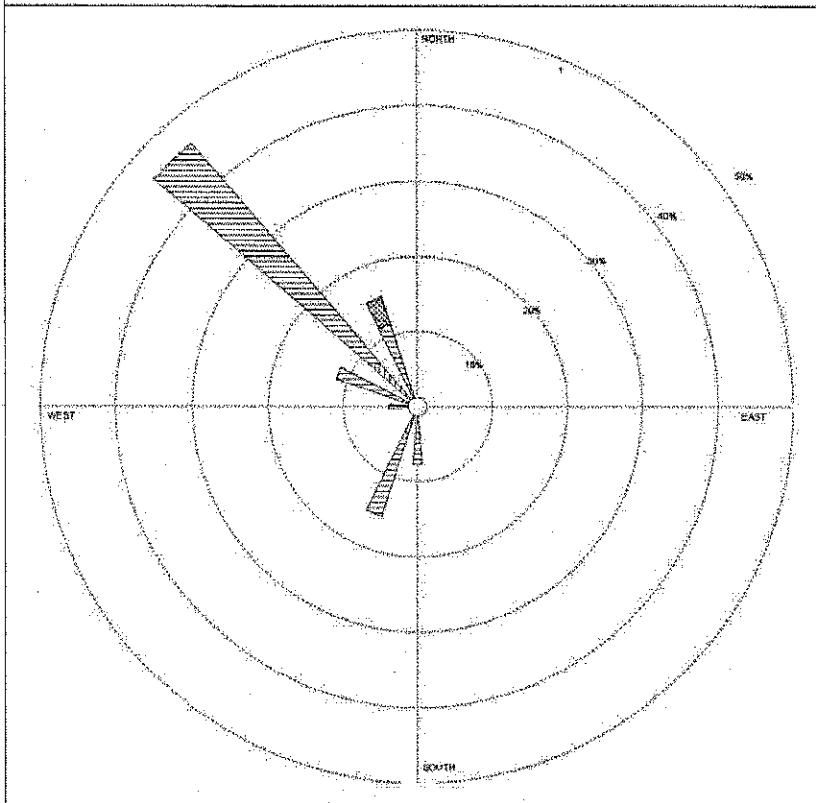
Frequency Distribution
 (Normalized)

	Wind Direction (Blowing From) / Wind Speed (Knots)						
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.038462	0.000000	0.000000	0.000000	0.000000	0.038462
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.038462	0.000000	0.000000	0.000000	0.000000	0.000000	0.038462
ESE	0.000000	0.115385	0.000000	0.000000	0.000000	0.000000	0.115385
SE	0.000000	0.115385	0.000000	0.000000	0.000000	0.000000	0.115385
SSE	0.000000	0.115385	0.115385	0.000000	0.000000	0.000000	0.230769
S	0.000000	0.000000	0.115385	0.076923	0.000000	0.000000	0.192308
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.038462	0.000000	0.000000	0.000000	0.000000	0.038462
WSW	0.000000	0.038462	0.000000	0.000000	0.000000	0.000000	0.038462
W	0.000000	0.192308	0.000000	0.000000	0.000000	0.000000	0.192308
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	0.038462	0.653846	0.230769	0.076923	0.000000	0.000000	

Frequency Calm Winds: 0.00
 Average Wind Speed: 6.35 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel - Gary Works; Event No.7



<p>Wind Speed (Knots)</p> <p>>21</p> <p>17 - 21</p> <p>11 - 16</p> <p>7 - 10</p> <p>4 - 6</p> <p>1 - 3</p>	MODELER	DATE	COMPANY NAME
	John Finnell	12/3/2002	TechLaw, Inc.
	DISPLAY	UNIT	COMMENTS
	Wind Speed	Knots	Oct. 12, 2002, 1000 hours to Oct. 13, 2002, 1100 hours 33-foot meteorological tower
	WIND SPEED	CALM WINDS	
	8.15 Knots	0.06%	
	ORIENTATION	PLUT YEAR/DATE/TIME	PROJECT/PLUT NO.
	Direction (blowing from)	2002 Oct 12 - Oct 13 Midnight - 11 PM	Air Monitoring/Operation Plan

WINDRose Plot 3.0 for Calver 2000/01/01 Software - www.techlaw.com

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 7

Year: 2002

Date Range: Oct 12 - Oct 13

Time Range: Midnight - 11 PM

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	2	0	0	0	2
SSW	0	1	3	0	0	0	4
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	1	0	0	0	1
WNW	0	0	3	0	0	0	3
NW	0	2	10	0	0	0	12
NNW	0	0	3	1	0	0	4
Total	0	3	22	1	0	0	

Frequency of Calm Winds: 0%

Average Wind Speed: 8.15 Knots

Station ID: 05902 RUN ID: U.S. Steel - Gary Works; Event No. 7
 Year: 2002
 Date Range: Oct 12 - Oct 13
 Time Range: Midnight - 11 PM

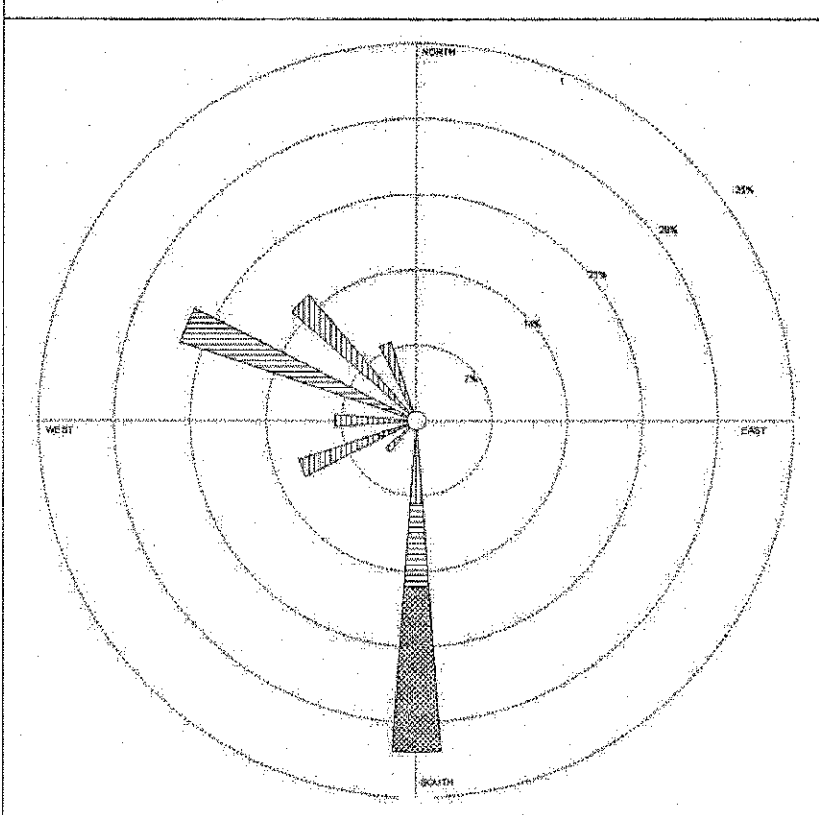
Frequency Distribution
 (Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.076923	0.000000	0.000000	0.000000	0.076923
SSW	0.000000	0.038462	0.115385	0.000000	0.000000	0.000000	0.153846
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.038462	0.000000	0.000000	0.000000	0.038462
WNW	0.000000	0.000000	0.115385	0.000000	0.000000	0.000000	0.115385
NW	0.000000	0.076923	0.384615	0.000000	0.000000	0.000000	0.461538
NNW	0.000000	0.000000	0.115385	0.038462	0.000000	0.000000	0.153846
Total	0.000000	0.115385	0.846154	0.038462	0.000000	0.000000	

Frequency Calm Winds: 0.00
 Average Wind Speed: 8.15 Knots

WIND ROSE PLOT
 Station #05902 - U.S. Steel - Gary Works; Event No. 8



Wind Speed (Knots)	MODELER John Finnell	DATE 12/3/2002	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS Oct. 18, 2002, 1200 hours to Oct. 19, 2002, 1300 hours 33-foot meteorological tower
	AVG. WIND SPEED 7.38 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR/DATE-TIME 2002 Oct 18 - Oct 19 Midnight - 11 PM	PROJECT/PLUT NO. Air Monitoring/Operation Plan

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 8

Year: 2002

Date Range: Oct 18 - Oct 19

Time Range: Midnight - 11 PM

Frequency Distribution
(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	2	2	4	0	0	8
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	1	2	0	0	0	0	3
W	0	2	0	0	0	0	2
WNW	0	0	6	0	0	0	6
NW	0	4	0	0	0	0	4
NNW	0	2	0	0	0	0	2
Total	1	13	8	4	0	0	

Frequency of Calm Winds: 0%

Average Wind Speed: 7.38 Knots

Station ID: 05902 RUN ID: U.S. Steel - Gary Works; Event No. 8
 Year: 2002
 Date Range: Oct 18 - Oct 19
 Time Range: Midnight - 11 PM

Frequency Distribution
 (Normalized)

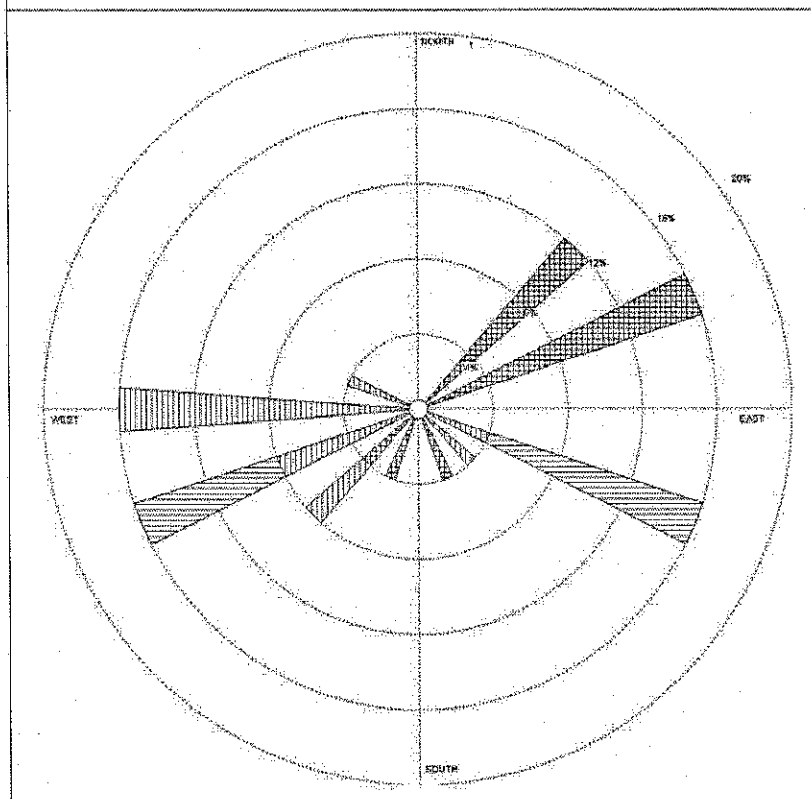
Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	> 21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.076923	0.076923	0.153846	0.000000	0.000000	0.307692
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.038462	0.000000	0.000000	0.000000	0.000000	0.038462
WSW	0.038462	0.076923	0.000000	0.000000	0.000000	0.000000	0.115385
W	0.000000	0.076923	0.000000	0.000000	0.000000	0.000000	0.076923
WNW	0.000000	0.000000	0.230769	0.000000	0.000000	0.000000	0.230769
NW	0.000000	0.153846	0.000000	0.000000	0.000000	0.000000	0.153846
NNW	0.000000	0.076923	0.000000	0.000000	0.000000	0.000000	0.076923
Total	0.038462	0.500000	0.307692	0.153846	0.000000	0.000000	

Frequency Calm Winds: 0.00
 Average Wind Speed: 7.38 Knots

WIND ROSE PLOT

Station #05002 - U.S. Steel - Gary Works; Event No. 8



<p>Wind Speed (Knots)</p> <p>> 21</p> <p>17 - 21</p> <p>11 - 16</p> <p>7 - 10</p> <p>4 - 6</p> <p>1 - 3</p>	<p>ROCKLER</p> <p>John Finnell</p> <p>GEORAY</p> <p>Wind Speed</p> <p>Avg. Wind Speed</p> <p>4.80 Knots</p> <p>ORIENTATION</p> <p>Direction (blowing from)</p>	<p>DATE</p> <p>12/8/2002</p> <p>UNIT</p> <p>Knots</p> <p>CALM WINDS</p> <p>0.00%</p> <p>PLOT YEAR DATE/TIME</p> <p>2002</p> <p>Oct 25 - Oct 26</p> <p>Midnight - 11 PM</p>	<p>COMPANY NAME</p> <p>TechLaw, Inc.</p> <p>COMMENTS</p> <p>Oct. 25, 2002, 0900 hours to</p> <p>Oct. 26, 2002, 0900 hours</p> <p>33-foot meteorological tower</p> <p>PROJECT/PLOT NO.</p> <p>Air Monitoring/Operation Plan</p>
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Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 9

Year: 2002

Date Range: Oct 25 - Oct 26

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	3	0	0	0	0	0	3
ENE	4	0	0	0	0	0	4
E	0	0	0	0	0	0	0
ESE	0	1	3	0	0	0	4
SE	0	1	0	0	0	0	1
SSE	1	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	1	0	0	0	0	0	1
SW	1	1	0	0	0	0	2
WSW	0	2	2	0	0	0	4
W	0	4	0	0	0	0	4
WNW	0	1	0	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	10	10	5	0	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 4.80 Knots

Station ID: 05902

RUN ID: U.S. Steel - Gary Works; Event No. 9

Year: 2002

Date Range: Oct 25 - Oct 26

Time Range: Midnight - 11 PM

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

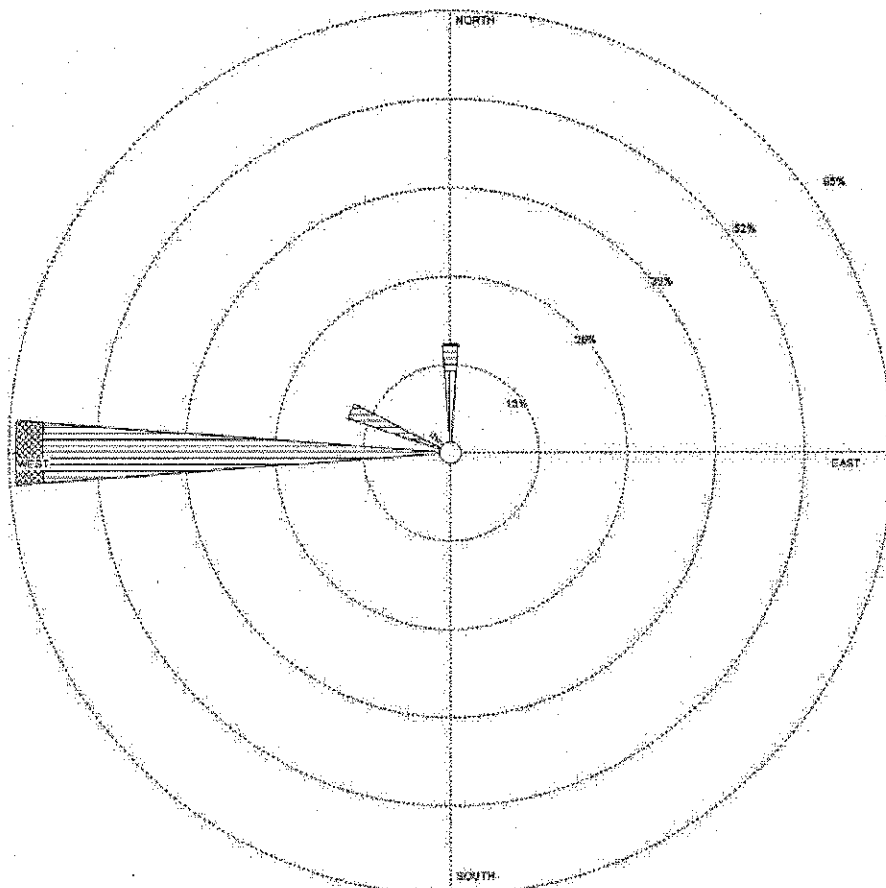
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.120000	0.000000	0.000000	0.000000	0.000000	0.000000	0.120000
ENE	0.160000	0.000000	0.000000	0.000000	0.000000	0.000000	0.160000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.040000	0.120000	0.000000	0.000000	0.000000	0.160000
SE	0.000000	0.040000	0.000000	0.000000	0.000000	0.000000	0.040000
SSE	0.040000	0.000000	0.000000	0.000000	0.000000	0.000000	0.040000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.040000	0.000000	0.000000	0.000000	0.000000	0.000000	0.040000
SW	0.040000	0.040000	0.000000	0.000000	0.000000	0.000000	0.080000
WSW	0.000000	0.080000	0.080000	0.000000	0.000000	0.000000	0.160000
W	0.000000	0.160000	0.000000	0.000000	0.000000	0.000000	0.160000
WNW	0.000000	0.040000	0.000000	0.000000	0.000000	0.000000	0.040000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.400000	0.400000	0.200000	0.000000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 4.80 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel Event: Event No. 10.



Wind Speed (Knots)



MODELER
John Finnell

DATE
3/4/2003

COMPANY NAME
TechLaw, Inc.

DISPLAY
Wind Speed

UNIT
Knots

COMMENTS

AVG. WIND SPEED
7.64 Knots

CALM WINDS
0.00%

No Exceedance at
Isolation Cell: Dredging
WE1116/02
October 31, 2002 to
November 01, 2002
33-foot meteorological tower

ORIENTATION
**Direction
(blowing from)**

PLOT YEAR/DATE/TIME
**2002
Jan 1 - Dec 31
Midnight - 11 PM**

PROJECT/PLOT NO.

Air Monitoring/Operation Plan

Station ID: 05902

No. 10

Year: 2002

Date Range: Oct 31 - Nov 1

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel - Gary Works; Event

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	3	1	0	0	0	4
NNE	0	0	0	0	0	0	0
NE	0	0	5	0	0	0	6
ENE	0	0	4	0	0	0	5
E	0	0	3	3	0	0	6
ESE	0	3	0	0	0	0	4
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	15	1	0	0	16
WNW	0	0	4	0	0	0	4
NW	0	1	0	0	0	0	1
NNW	0	0	0	0	0	0	0
Total	0	4	20	1	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 7.64 Knots

Station ID: 05902

No. 10

Year: 2002

Date Range: Oct 31 - Nov 1

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel - Gary Works; Event

Frequency Distribution

(Normalized)

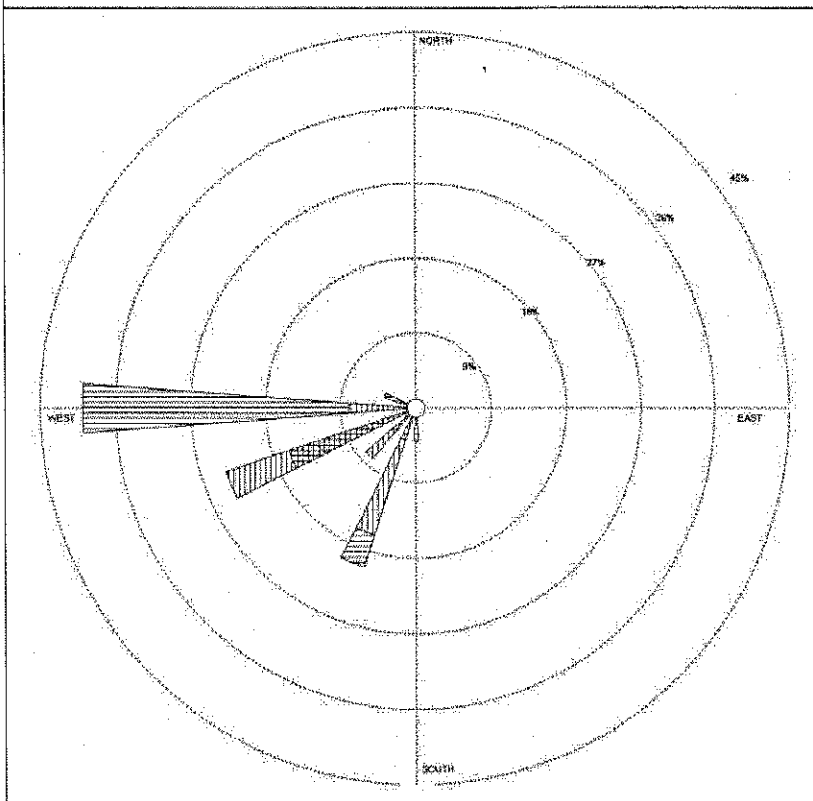
Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.120000	0.040000	0.000000	0.000000	0.000000	0.160000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.040000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.600000	0.040000	0.000000	0.000000	0.640000
WNW	0.000000	0.000000	0.160000	0.000000	0.000000	0.000000	0.160000
NW	0.000000	0.040000	0.000000	0.000000	0.000000	0.000000	0.040000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.160000	0.800000	0.040000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 7.64 Knots

WINDROSE PLOT
 Station #05902 - U.S. Steel - Gary Works; Event No. 11



Wind Speed (Knots) 	MODELER John Finnell	DATE 12/8/2002	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS Nov. 5, 2002, 1100 hours to Nov. 7, 2002, 1100 hours 33-foot meteorological tower
	AVG. WIND SPEED 6.08 Knots	CALM WIND 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR/MONTH/TIME 2002 Nov 6 - Nov 7 Midnight - 11 PM	PROJECT/LOT NO. Air Monitoring/Operation Plan

WindPlot User 3.5.0 / User Instructions / Copyright: www.techlaw.com

Station ID: 05902

No. 11

Year: 2002

Date Range: Nov 6 - Nov 7

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel - Gary Works; Event

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	1	0	0	0	1
SSW	1	3	1	0	0	0	5
SW	1	1	0	0	0	0	2
WSW	4	2	0	0	0	0	6
W	0	2	8	0	0	0	10
WNW	0	0	1	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	6	8	11	0	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 6.08 Knots

Station ID: 05902

No. 11

Year: 2002

Date Range: Nov 6 - Nov 7

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel - Gary Works; Event

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

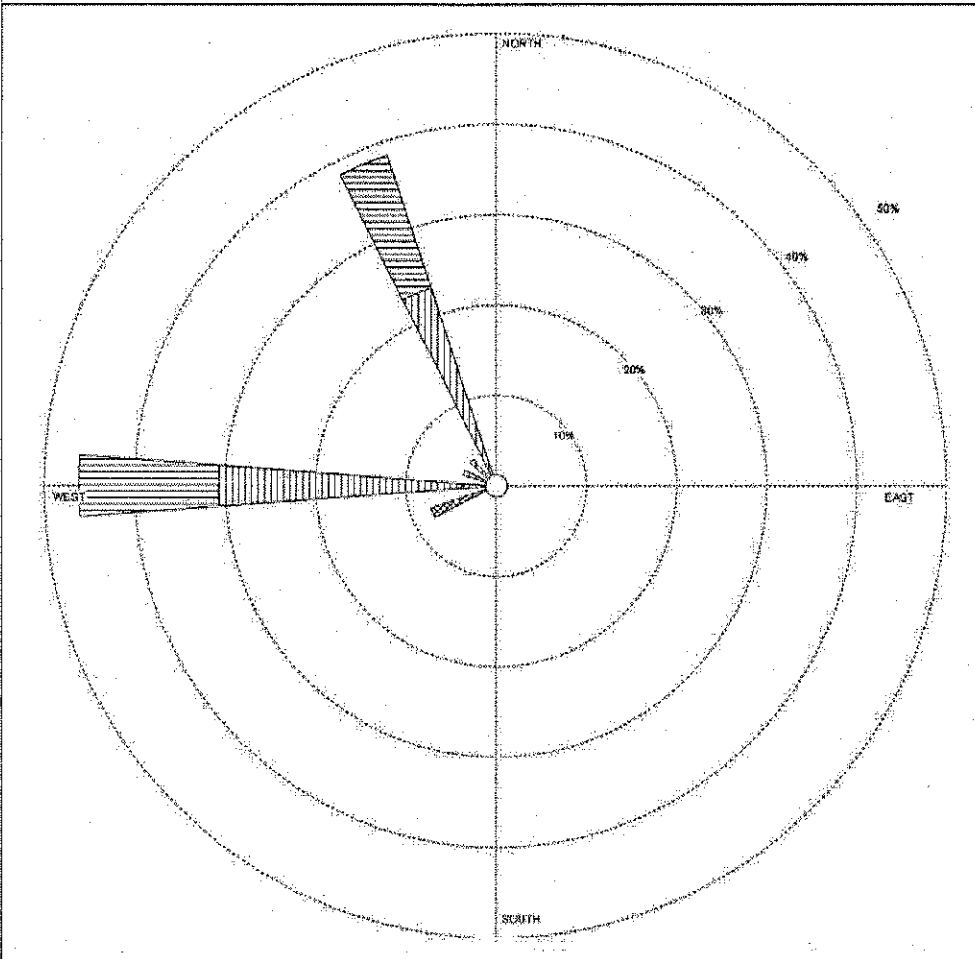
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.040000	0.000000	0.000000	0.000000	0.040000
SSW	0.040000	0.120000	0.040000	0.000000	0.000000	0.000000	0.200000
SW	0.040000	0.040000	0.000000	0.000000	0.000000	0.000000	0.080000
WSW	0.160000	0.080000	0.000000	0.000000	0.000000	0.000000	0.240000
W	0.000000	0.080000	0.320000	0.000000	0.000000	0.000000	0.400000
WNW	0.000000	0.000000	0.040000	0.000000	0.000000	0.000000	0.040000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.240000	0.320000	0.440000	0.040000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 6.08 Knots

WINDROSE PLOT

Station #05902 - U.S. Steel/CAMU Baseline - WE11/16/02 (R05902#12).



Wind Speed (Knots)	MODELER John Finnell	DATE 2/27/2003	COMPANY NAME TechLaw, Inc.
<div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background-color: black; margin-right: 5px;"></div> <div style="font-size: 8px;"> > 31 17 - 21 11 - 16 7 - 10 4 - 6 1 - 3 </div> </div>	DISPLAY Wind Speed	UNIT Knots	COMMENTS No Exceedance at CAMU Station 2: Baseline WE11/16/02 November 11, 2002 to November 12, 2002 33-foot meteorological tower
	AVG. WIND SPEED 8.46 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 2002 Jan 1 - Dec 31 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan

WINDROSE Plot 3.0 by Linda R. Finnell et al. Software - www.techlaw.com/techlaw.htm

Station ID: 05902

(R05902#12)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Baseline - WE 11/16/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	2	0	0	2
W	1	7	4	0	0	0	12
WNW	0	1	0	0	0	0	1
NW	0	1	0	0	0	0	1
NNW	0	6	4	0	0	0	10
Total	1	15	8	2	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 6.46 Knots

Station ID: 05902

(R05902#12)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Baseline - WE 11/16/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

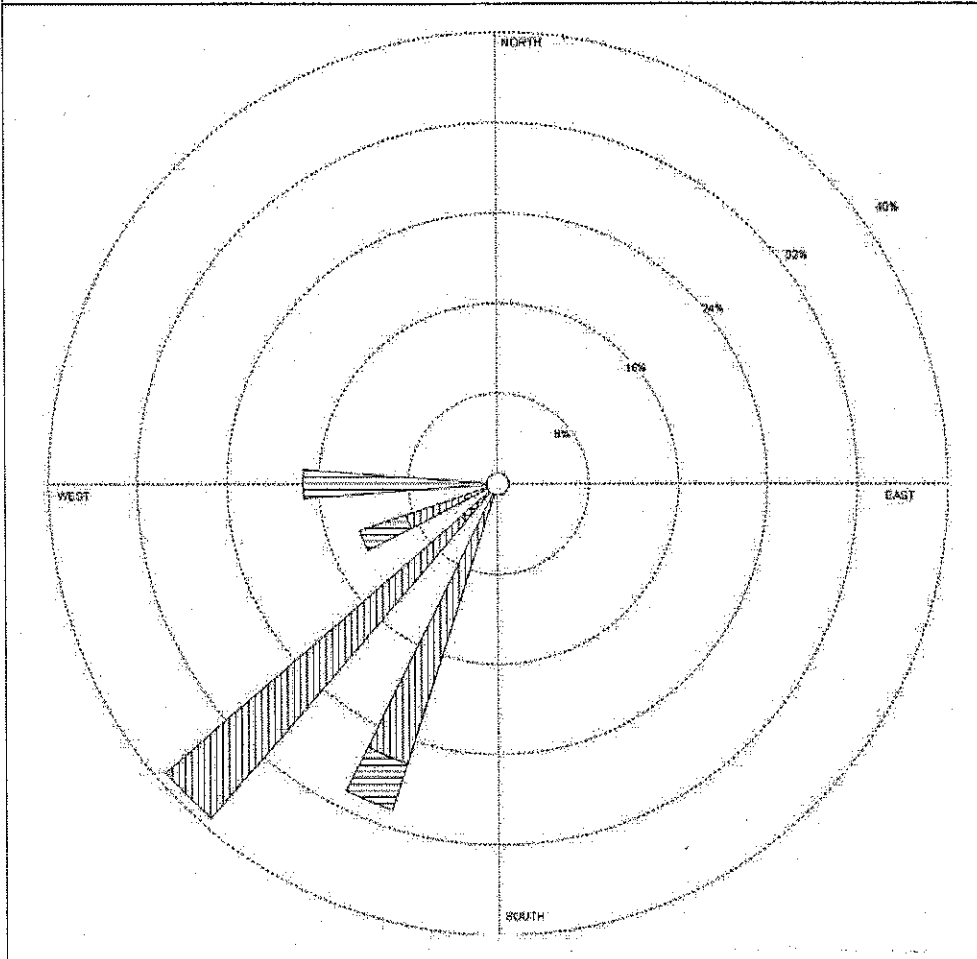
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.076923	0.000000	0.000000	0.076923
W	0.038462	0.269231	0.153846	0.000000	0.000000	0.000000	0.461538
WNW	0.000000	0.038462	0.000000	0.000000	0.000000	0.000000	0.038462
NW	0.000000	0.038462	0.000000	0.000000	0.000000	0.000000	0.038462
NNW	0.000000	0.230769	0.153846	0.000000	0.000000	0.000000	0.384615
Total	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

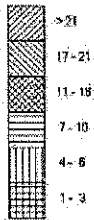
Average Wind Speed: 6.46 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel: Isolation Cell Dredging - WE11/16/02 (R05902#13),



Wind Speed (Knots)



MODELER

John Finnell

DATE

2/27/2003

COMPANY NAME

TechLaw, Inc.

DISPLAY

Wind Speed

UNIT

Knots

AVG. WIND SPEED

5.83 Knots

CALM WINDS

0.00%

ORIENTATION

Direction
(blowing from)

PLOT YEAR-DATE-TIME

2002
Jan 1 - Dec 31
Midnight - 11 PM

COMMENTS

No Exceedance at
Isolation Cell: Dredging
WE11/16/02
November 12, 2002 to
November 13, 2002
33-foot meteorological tower

PROJECT/PLOT NO.

Air Monitoring/Operation Plan

Station ID: 05902
(R05902#13)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU and IC Dredging - WE 11/16/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	6	1	0	0	0	7
SW	1	8	0	0	0	0	9
WSW	0	2	1	0	0	0	3
W	0	0	4	0	0	0	4
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	1	15	8	2	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 5.83 Knots

Station ID: 05902

(R05902#13)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU and IC Dredging - WE 11/16/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

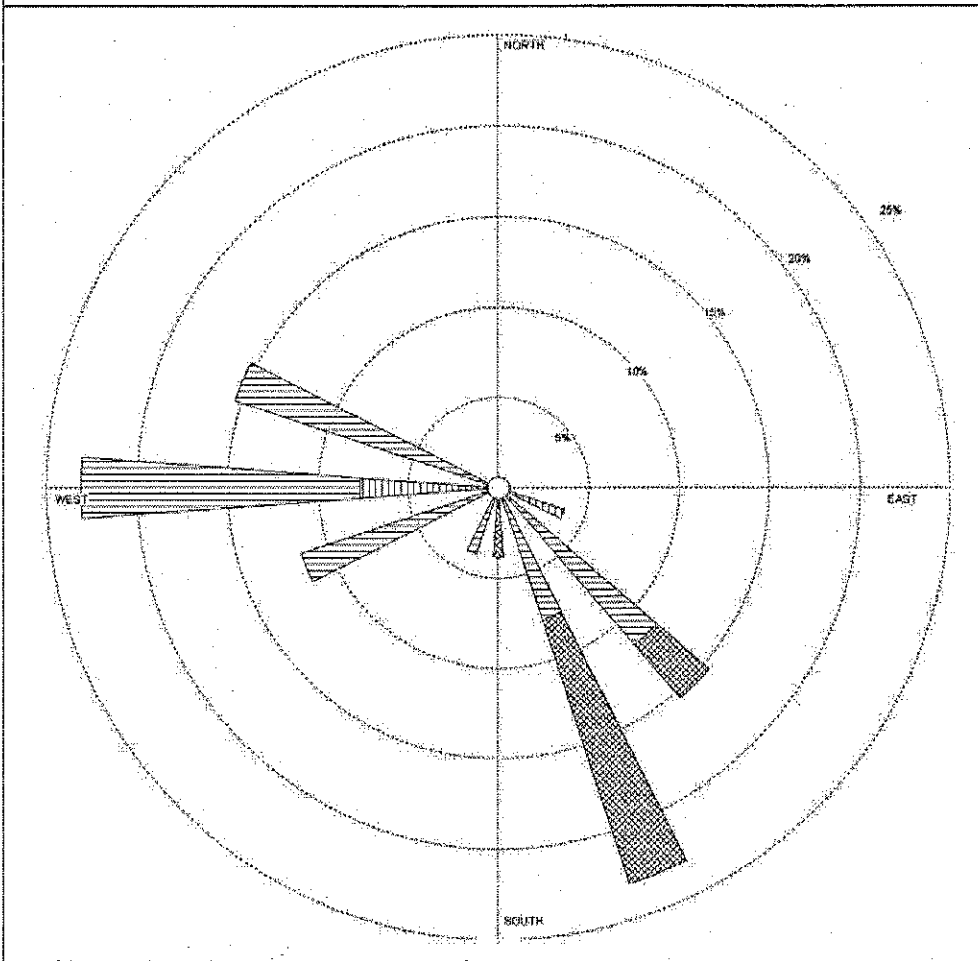
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.260870	0.043478	0.000000	0.000000	0.000000	0.304348
SW	0.43478	0.347826	0.000000	0.000000	0.000000	0.000000	0.391304
WSW	0.000000	0.086957	0.043478	0.000000	0.000000	0.000000	0.130435
W	0.000000	0.000000	0.173913	0.000000	0.000000	0.000000	0.173913
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.043478	0.695652	0.260870	0.000000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 5.83 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel: CAMU and IC Baseline - WE11/23/02 (R05902#14).



<p>Wind Speed (Knots)</p> <p>> 21</p> <p>17 - 21</p> <p>11 - 16</p> <p>7 - 10</p> <p>4 - 6</p> <p>1 - 3</p>	MOODLER	DATE	COMPANY NAME
	John Finnell	2/27/2003	TechLaw, Inc.
	DISPLAY	UNIT	COMMENTS
	Wind Speed	Knots	No Exceedance at CAMU and IC: Baseline WE11/23/02 November 18, 2002 to November 19, 2002 33-foot meteorological tower
	AVG. WIND SPEED	CALM WINDS	PROJECT PLOT NO.
	8.89 Knots	0.00%	Air Monitoring/Operation Plan
	ORIENTATION	PLOT YEAR-DATE-TIME	
	Direction (blowing from)	2002 Jan 1 - Dec 31 Midnight - 11 PM	

WRPLOT V.02 by Lohm, Estimation of Substation - www.techlaw.com/air/monitoring

Station ID: 05902

(R05902#14)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU and IC Baseline - WE 11/23/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	1	0	0	0	0	1
SE	0	0	3	1	0	0	4
SSE	0	0	2	4	0	0	6
S	0	0	0	1	0	0	1
SSW	0	0	1	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	3	0	0	0	3
W	0	2	4	0	0	0	6
WNW	0	0	4	0	0	0	4
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	3	17	6	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 8.69 Knots

Station ID: 05902

(R05902#14)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU and IC Baseline - WE 11/23/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

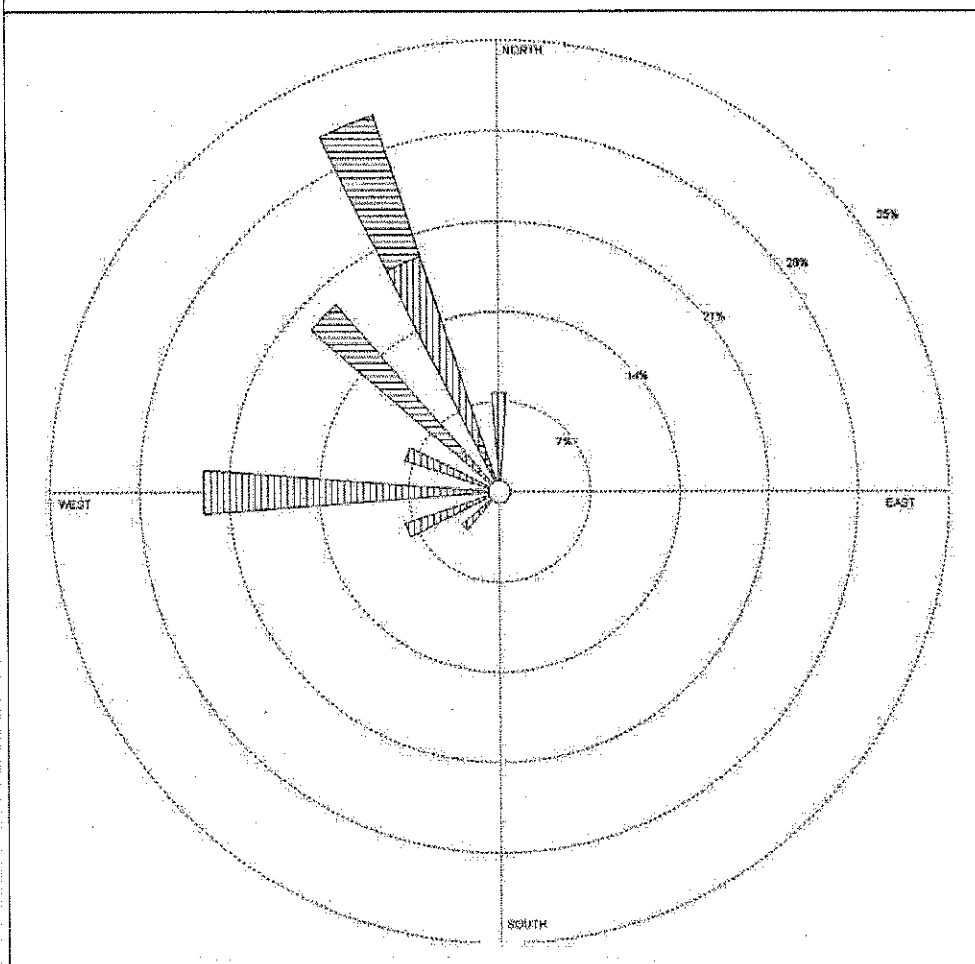
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.038462	0.000000	0.000000	0.000000	0.000000	0.038462
SE	0.000000	0.000000	0.115385	0.038462	0.000000	0.000000	0.153846
SSE	0.000000	0.000000	0.076923	0.153846	0.000000	0.000000	0.230769
S	0.000000	0.000000	0.000000	0.038462	0.000000	0.000000	0.038462
SSW	0.000000	0.000000	0.038462	0.000000	0.000000	0.000000	0.038462
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.115385	0.000000	0.000000	0.000000	0.115385
W	0.000000	0.076923	0.153846	0.000000	0.000000	0.000000	0.230769
WNW	0.000000	0.000000	0.153846	0.000000	0.000000	0.000000	0.153846
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.115385	0.653846	0.230769	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 8.69 Knots

WIND ROSE PLOT:

Station #05902 - U.S. Steel: Isolation Cell Baseline - Event 14 (R05902 #15),



<p>Wind Speed (Knots)</p> <p>> 21</p> <p>17 - 21</p> <p>11 - 16</p> <p>7 - 10</p> <p>4 - 6</p> <p>1 - 3</p>	MODELER	DATE	COMPANY NAME
	John Finnell	2/27/2003	TechLaw, Inc.
	DISPLAY	UNIT	COMMENTS
	Wind Speed	Knots	Naphthalene Exceedance at Isolation Cell: Baseline Event 14 November 25, 2002 to November 26, 2002 33-foot meteorological tower
	AVG. WIND SPEED	CALM WINDS	
	5.65 Knots	0.00%	
	ORIENTATION	PLOT YEAR/DATE/TIME	PROJECT/PLOT NO.
	Direction (blowing from)	2002 Jan 1 - Dec 31 Midnight - 11 PM	Air Monitoring/Operation Plan

Station ID: 05902

(R05902#15)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Baseline - Event 14

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	2	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	2	0	0	0	0	2
W	0	6	0	0	0	0	6
WNW	0	2	0	0	0	0	2
NW	0	1	4	0	0	0	5
NNW	1	4	3	0	0	0	8
Total	1	18	7	0	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 5.65 Knots

Station ID: 05902

(R05902#15)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Baseline - Event 14

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.076923	0.000000	0.000000	0.000000	0.000000	0.076923
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.038462	0.000000	0.000000	0.000000	0.000000	0.038462
WSW	0.000000	0.076923	0.000000	0.000000	0.000000	0.000000	0.076923
W	0.000000	0.230769	0.000000	0.000000	0.000000	0.000000	0.230769
WNW	0.000000	0.076923	0.000000	0.000000	0.000000	0.000000	0.076923
NW	0.000000	0.038462	0.153846	0.000000	0.000000	0.000000	0.192308
NNW	0.038462	0.153846	0.115385	0.000000	0.000000	0.000000	0.307692
Total	0.038462	0.692308	0.269231	0.000000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 5.65 Knots

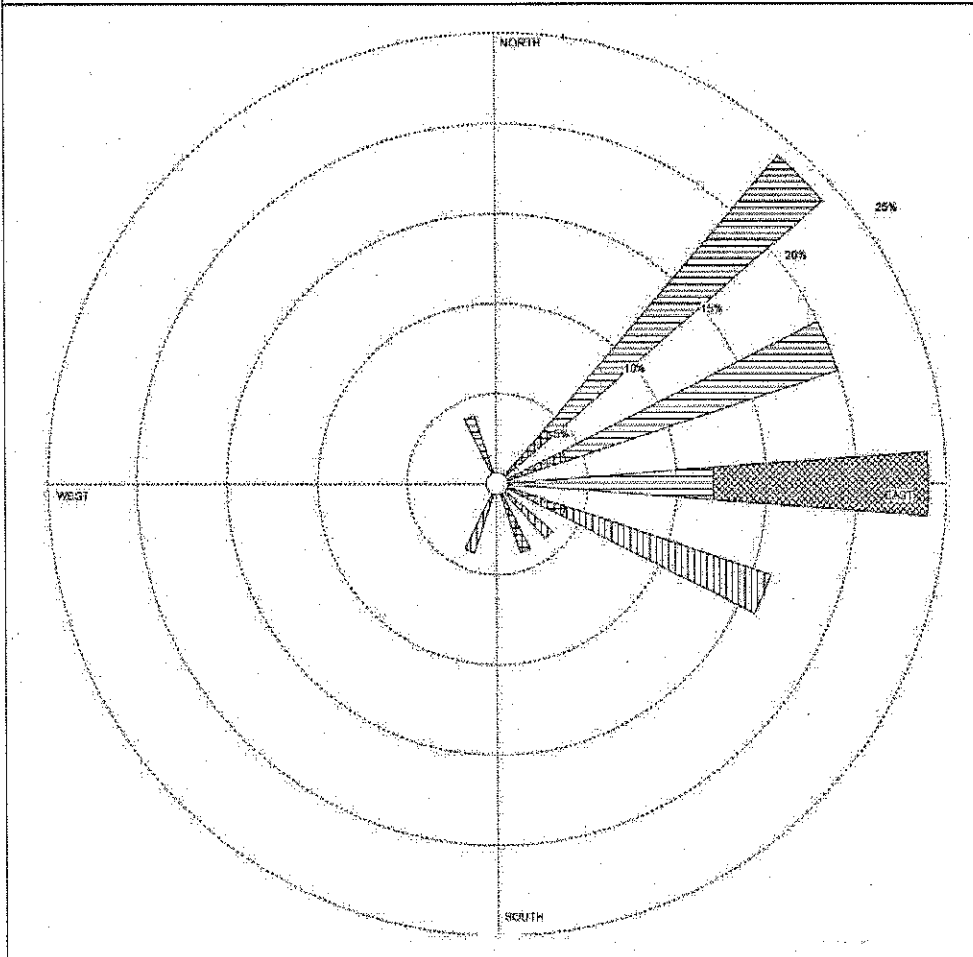
ATTACHMENT 3

Meteorological Data

**U.S. Steel Sampling
Dredging Exceedances 16 to 30
December 2, 2002 to January 17, 2003**

WIND ROSE PLOT

Station #05902 - U.S. Steel CAMU Dredging - WE12/07/02 (R05902#16) .



Wind Speed (knots)	MODELER John Finnell	DATE 2/27/2003	COMPANY NAME TechLaw, Inc.
<div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-right: 5px;"></div> <div style="font-size: 8px;">> 21</div> </div> <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-right: 5px;"></div> <div style="font-size: 8px;">17 - 21</div> </div> <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background: repeating-linear-gradient(-135deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-right: 5px;"></div> <div style="font-size: 8px;">13 - 16</div> </div> <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background: repeating-linear-gradient(135deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-right: 5px;"></div> <div style="font-size: 8px;">7 - 10</div> </div> <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-right: 5px;"></div> <div style="font-size: 8px;">4 - 6</div> </div> <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-right: 5px;"></div> <div style="font-size: 8px;">1 - 3</div> </div>	DISPLAY Wind Speed	UNIT Knots	COMMENTS No Exceedance at CAMU Str. 1, 2 & 3: Dredging WE12/07/02 December 2, 2002 to December 3, 2002 33-foot meteorological tower.
	AVG. WIND SPEED 7.08 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATETIME 2002 Jan 1 - Dec 31 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan

Station ID: 05902

(R05902#16)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - WE 12/07/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	1	0	5	0	0	0	6
ENE	1	0	4	0	0	0	5
E	0	0	3	3	0	0	6
ESE	1	3	0	0	0	0	4
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	1	0	0	0	1
Total	4	5	13	3	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 7.08 Knots

Station ID: 05902

(R05902#16)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - WE 12/07/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

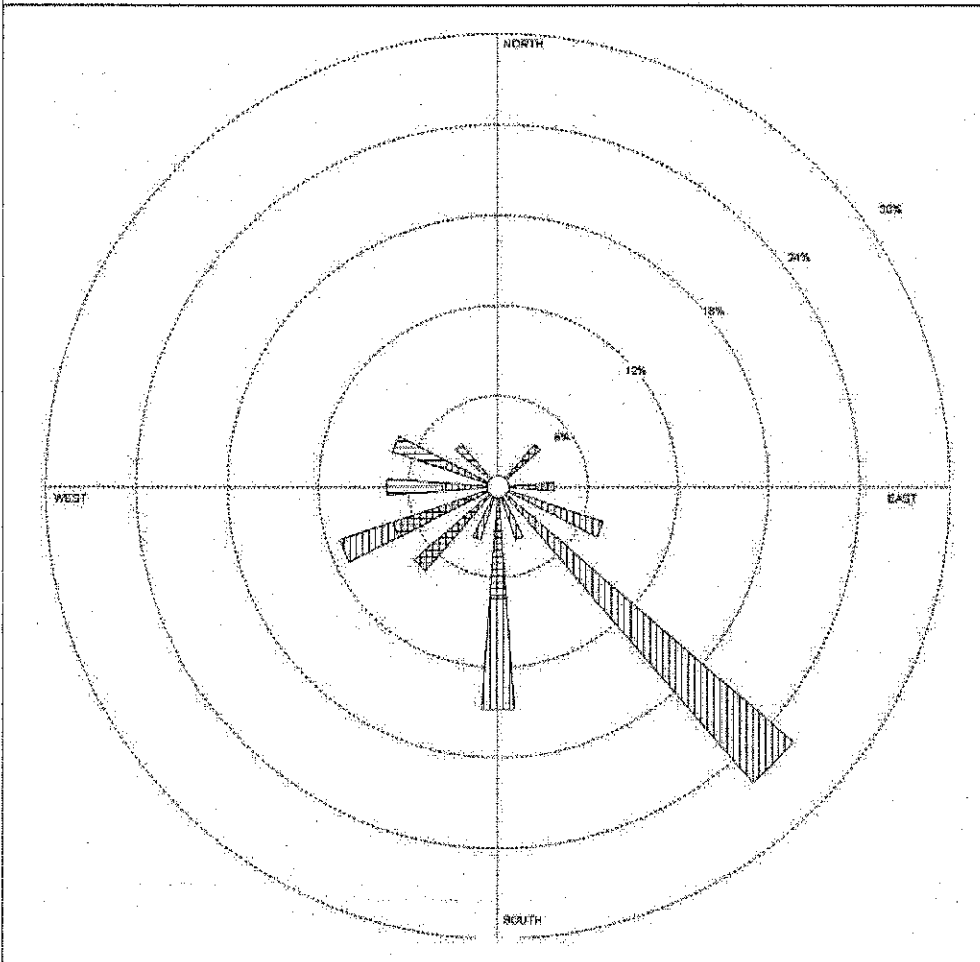
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.040000	0.000000	0.200000	0.000000	0.000000	0.000000	0.240000
ENE	0.040000	0.000000	0.160000	0.000000	0.000000	0.000000	0.200000
E	0.000000	0.000000	0.120000	0.120000	0.000000	0.000000	0.240000
ESE	0.040000	0.120000	0.000000	0.000000	0.000000	0.000000	0.160000
SE	0.000000	0.040000	0.000000	0.000000	0.000000	0.000000	0.040000
SSE	0.040000	0.000000	0.000000	0.000000	0.000000	0.000000	0.040000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.040000	0.000000	0.000000	0.000000	0.000000	0.040000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.040000	0.000000	0.000000	0.000000	0.040000
Total	0.160000	0.200000	0.520000	0.120000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 7.08 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel; CAMU Dredging - Event 1 (R05902#17),



<p>Wind Speed (Knots)</p> <p>> 21</p> <p>17 - 21</p> <p>11 - 16</p> <p>7 - 10</p> <p>4 - 6</p> <p>1 - 3</p>	MODELER	DATE	COMPANY NAME
	John Finnell	2/27/2003	TechLaw, Inc.
	DISPLAY	UNIT	COMMENTS
	Wind Speed	Knots	2 Naphthalene Exceedances at CAMU 1 & 3; Dredging Event 1 December 4, 2002 to December 5, 2002 33-foot meteorological tower
	AVG. WIND SPEED	CALM WINDS	
	4.48 Knots	0.00%	
	ORIENTATION	PLOT YEAR-DATE-TIME	PROJECT/LOT NO.
	Direction (blowing from)	2002 Jan 1 - Dec 31 Midnight - 11 PM	Air Monitoring/Operation Plan

Station ID: 05902

(R05902#17)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - Event 1

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	1	0	0	0	0	0	1
ESE	0	2	0	0	0	0	2
SE	0	7	0	0	0	0	7
SSE	0	1	0	0	0	0	1
S	2	2	0	0	0	0	4
SSW	0	1	0	0	0	0	1
SW	2	0	0	0	0	0	2
WSW	2	1	0	0	0	0	3
W	0	1	1	0	0	0	2
WNW	0	1	1	0	0	0	2
NW	0	0	1	0	0	0	1
NNW	0	0	0	0	0	0	0
Total	8	16	3	0	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 4.48 Knots

Station ID: 05902

(R05902#17)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - Event 1

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

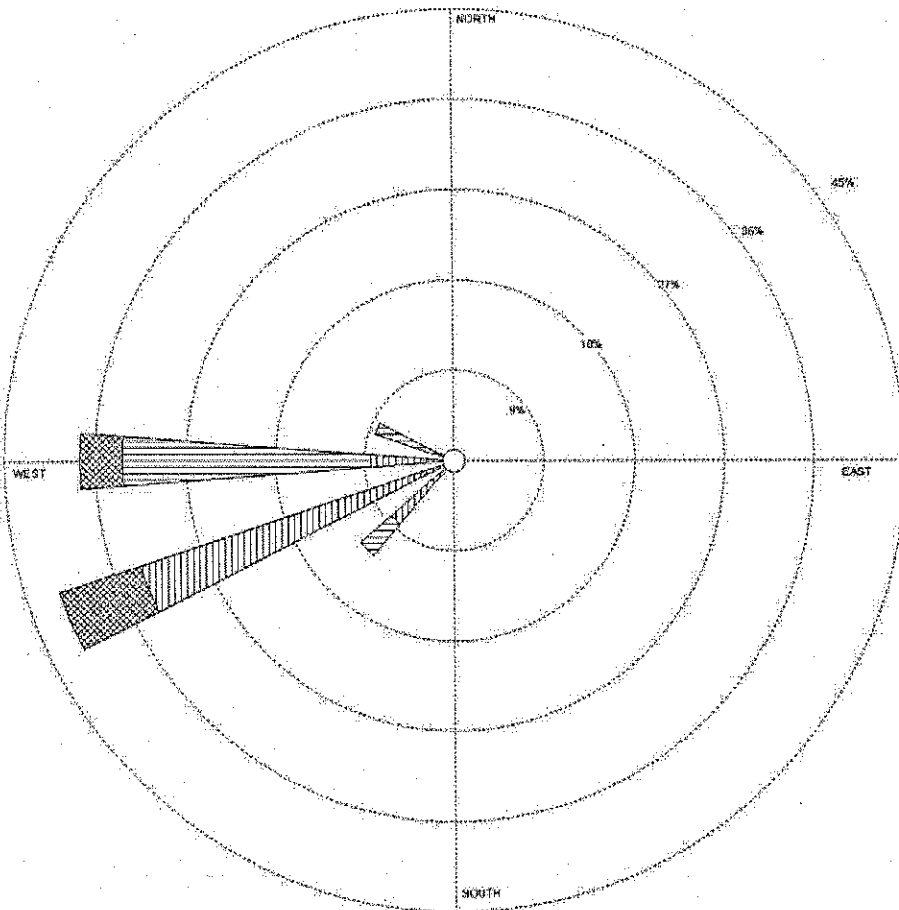
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.037037	0.000000	0.000000	0.000000	0.000000	0.000000	0.037037
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.037037	0.000000	0.000000	0.000000	0.000000	0.000000	0.037037
ESE	0.000000	0.074074	0.000000	0.000000	0.000000	0.000000	0.074074
SE	0.000000	0.259259	0.000000	0.000000	0.000000	0.000000	0.259259
SSE	0.000000	0.037037	0.000000	0.000000	0.000000	0.000000	0.037037
S	0.074074	0.074074	0.000000	0.000000	0.000000	0.000000	0.148148
SSW	0.000000	0.037037	0.000000	0.000000	0.000000	0.000000	0.037037
SW	0.074074	0.000000	0.000000	0.000000	0.000000	0.000000	0.074074
WSW	0.074074	0.037037	0.000000	0.000000	0.000000	0.000000	0.111111
W	0.000000	0.037037	0.037037	0.000000	0.000000	0.000000	0.074074
WNW	0.000000	0.037037	0.037037	0.000000	0.000000	0.000000	0.074074
NW	0.000000	0.000000	0.037037	0.000000	0.000000	0.000000	0.037037
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.296296	0.592593	0.111111	0.000000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 4.48 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel CAMU Dredging - Event 2 (R05802#18)



Wind Speed (Knots)



MODELER
John Finnell

DATE
2/27/2003

COMPANY NAME
TechLaw, Inc.

DISPLAY
Wind Speed

UNIT
Knots

COMMENTS

AVG. WIND SPEED
6.88 Knots

CALM WINDS
0.00%

2 Naphthalene Exceedances at
CAMU 1& 3: Dredging Event 2
December 5, 2002 to
December 6, 2002
33-foot meteorological tower

ORIENTATION
Direction
(blowing from)

PLOT YEAR-DATE-TIME
2002
Jan 1 - Dec 31
Midnight - 11 PM

PROJECT/LOT NO.

Air Monitoring/Operation Plan

Station ID: 05902
(R05902#18)

RUN ID: U.S. Steel: CAMU Dredging - Event 2

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	2	1	0	0	0	3
WSW	0	8	0	2	0	0	10
W	0	2	6	1	0	0	9
WNW	0	0	2	0	0	0	2
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	12	9	3	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 6.88 Knots

Station ID: 05902

(R05902#18)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - Event 2

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

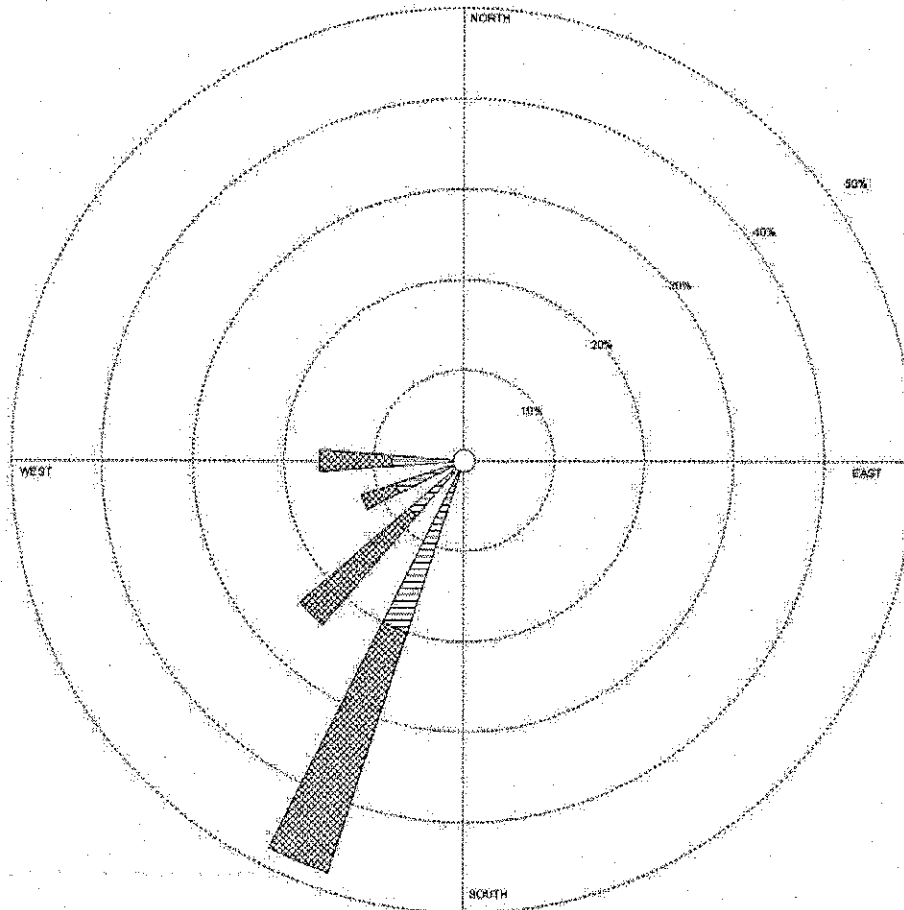
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.083333	0.041667	0.000000	0.000000	0.000000	0.125000
WSW	0.000000	0.333333	0.000000	0.083333	0.000000	0.000000	0.416667
W	0.000000	0.083333	0.250000	0.041667	0.000000	0.000000	0.375000
WNW	0.000000	0.000000	0.083333	0.000000	0.000000	0.000000	0.083333
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.500000	0.375000	0.125000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 6.88 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel/CAMU Dredging - WE12/07/02 (R05902#19)



<p>Wind Speed (Knots)</p> <p>> 21</p> <p>(7 - 21)</p> <p>11 - 19</p> <p>7 - 10</p> <p>4 - 8</p> <p>1 - 3</p>	MOOREL	DATE	COMPANY NAME
	John Finnell	2/27/2003	TechLaw, Inc.
	DISPLAY	UNIT	COMMENTS
	Wind Speed	Knots	No Exceedance at CAMU Str. 1, 2 & 3: Dredging WE12/07/02 December 6, 2002 to December 7, 2002 33-foot meteorological tower
	AVG. WIND SPEED	CALM WINDS	PROJECT/LOT NO.
	11.20 Knots	0.00%	Air Monitoring/Operation Plan
	ORIENTATION	PLOT YEAR-DATE-TIME	
	Direction: (blowing from)	2002 Jan 1 - Dec 31 Midnight - 11 PM	

Station ID: 05902

(R05902#19)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - WE 12/07/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	5	7	0	0	12
SW	0	0	2	4	0	0	6
WSW	0	0	2	1	0	0	3
W	0	0	2	2	0	0	4
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	11	14	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 11.20 Knots

Station ID: 05902
(R05902#19)

RUN ID: U.S. Steel: CAMU Dredging - WE 12/07/02

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

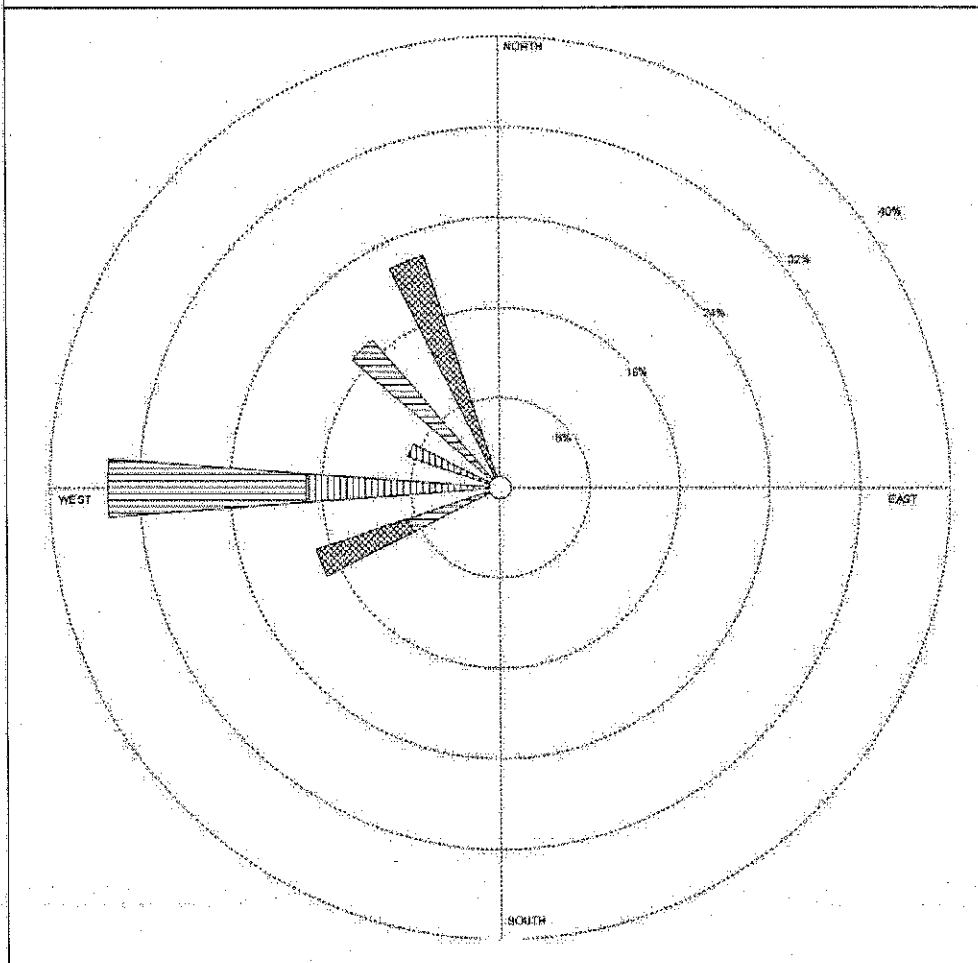
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.200000	0.280000	0.000000	0.000000	0.480000
SW	0.000000	0.000000	0.080000	0.160000	0.000000	0.000000	0.240000
WSW	0.000000	0.000000	0.080000	0.040000	0.000000	0.000000	0.120000
W	0.000000	0.000000	0.080000	0.080000	0.000000	0.000000	0.160000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.000000	0.440000	0.560000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 11.20 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel/CAMU Dredging - WE12/07/02 (R05902#20)



<p>Wind Speed (Knots)</p>	MODELER John Finnell	DATE 2/27/2003	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS
	Avg. WIND SPEED 9.22 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 2002 Jan 1 - Dec 31 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan

Station ID: 05902
(R05902#20)

RUN ID: U.S. Steel: CAMU Dredging - WE 12/07/02

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	2	2	0	0	4
W	0	4	4	0	0	0	8
WNW	0	2	0	0	0	0	2
NW	0	0	4	0	0	0	4
NNW	0	0	0	5	0	0	5
Total	0	6	10	7	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 9.22 Knots

Station ID: 05902
(R05902#20)

RUN ID: U.S. Steel: CAMU Dredging - WE 12/07/02

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

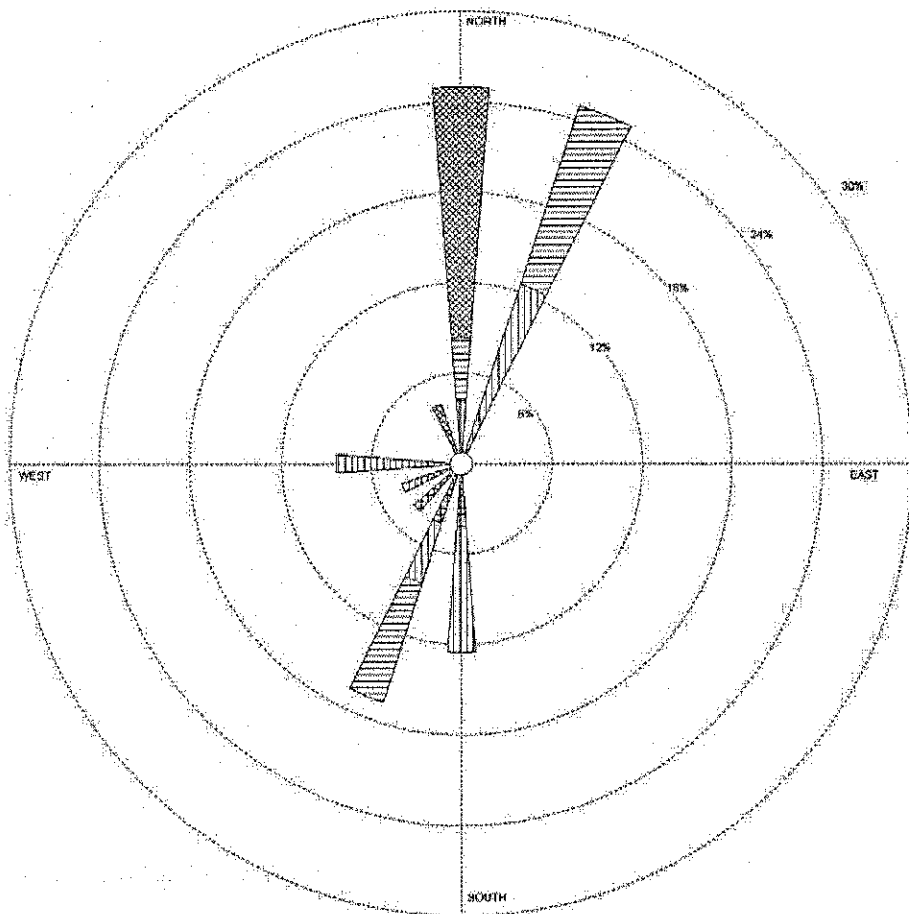
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.086957	0.086957	0.000000	0.000000	0.173913
W	0.000000	0.173913	0.173913	0.000000	0.000000	0.000000	0.347826
WNW	0.000000	0.086957	0.000000	0.000000	0.000000	0.000000	0.086957
NW	0.000000	0.000000	0.173913	0.000000	0.000000	0.000000	0.173913
NNW	0.000000	0.000000	0.000000	0.217391	0.000000	0.000000	0.217391
Total	0.000000	0.260870	0.434783	0.304348	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 9.22 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel/CAMU Dredging - WE12/14/02 (R05902#21)



Wind Speed (Knots)	MODELER John Finnell	DATE 2/27/2003	COMPANY NAME TechLaw, Inc.
<div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-right: 5px;"></div> <div> <p>> 21</p> <p>17 - 21</p> <p>13 - 18</p> <p>7 - 10</p> <p>4 - 6</p> <p>1 - 3</p> </div> </div>	DISPLAY Wind Speed	UNIT Knots	COMMENTS No Exceedance at CAMU Str. 1, 2 & 3: Dredging WE12/14/02 December 8, 2002 to December 9, 2002 33-foot meteorological tower
	AVG. WIND SPEED 6.63 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 2002 Jan 1 - Dec 31 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan

Station ID: 05902
(R05902#21)

RUN ID: U.S. Steel: CAMU Dredging - WE 12/14/02

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	1	1	4	0	0	6
NNE	0	3	3	0	0	0	6
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	1	2	0	0	0	0	3
SSW	1	1	2	0	0	0	4
SW	1	0	0	0	0	0	1
WSW	0	1	0	0	0	0	1
W	0	2	0	0	0	0	2
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	1	0	0	1
Total	3	10	6	5	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 6.63 Knots

Station ID: 05902
(R05902#21)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - WE 12/14/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

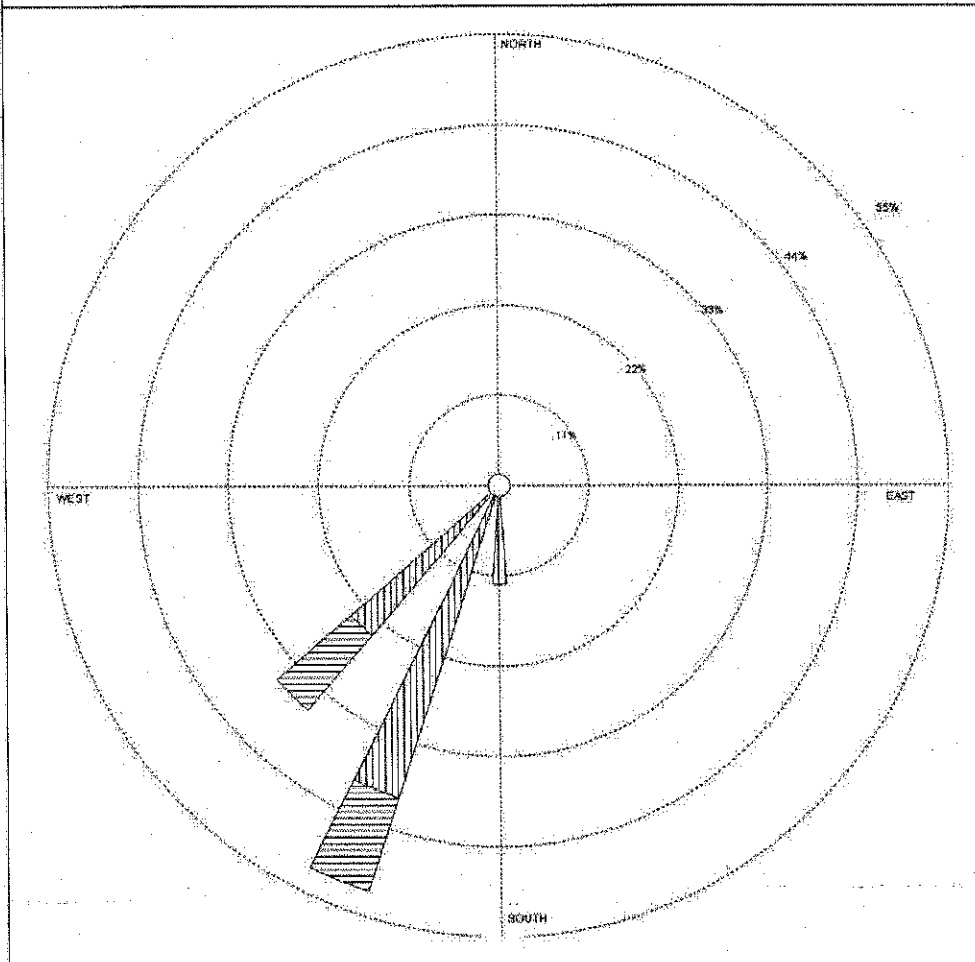
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.041667	0.041667	0.166667	0.000000	0.000000	0.250000
NNE	0.000000	0.125000	0.125000	0.000000	0.000000	0.000000	0.250000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.041667	0.083333	0.000000	0.000000	0.000000	0.000000	0.125000
SSW	0.041667	0.041667	0.000000	0.000000	0.000000	0.000000	0.166667
SW	0.041667	0.000000	0.000000	0.000000	0.000000	0.000000	0.041667
WSW	0.000000	0.041667	0.000000	0.000000	0.000000	0.000000	0.041667
W	0.000000	0.083333	0.000000	0.000000	0.000000	0.000000	0.083333
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.041667	0.000000	0.000000	0.041667
Total	0.125000	0.416667	0.250000	0.208333	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

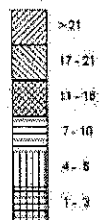
Average Wind Speed: 6.63 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel/CAMU Dredging - WE12/14/02 (R05902#22),



Wind Speed (Knots)



>21

17-21

13-16

7-10

4-6

1-3

MOOREL

John Finnell

DATE

2/27/2003

COMPANY NAME

TechLaw, Inc.

DISPLAY

Wind Speed

UNIT

Knots

AVG. WIND SPEED

5.80 Knots

CALM WINDS

0.00%

ORIENTATION

Direction
(blowing from)

PLOT YEAR/DATE/TIME

2002
Jan 1 - Dec 31
Midnight - 11 PM

COMMENTS

No Exceedance at
CAMU Stn. 1, 2 & 3: Dredging
WE12/14/02
December 9, 2002 to
December 10, 2002
33-foot meteorological tower

PROJECT/PLOT NO.

Air Monitoring/Operation Plan

Station ID: 05902
(R05902#22)

RUN ID: U.S. Steel: CAMU Dredging - WE 12/14/02

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	3	0	0	0	0	3
SSW	0	10	3	0	0	0	13
SW	0	6	3	0	0	0	9
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	19	6	0	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 5.80 Knots

Station ID: 05902
(R05902#22)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - WE 12/14/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

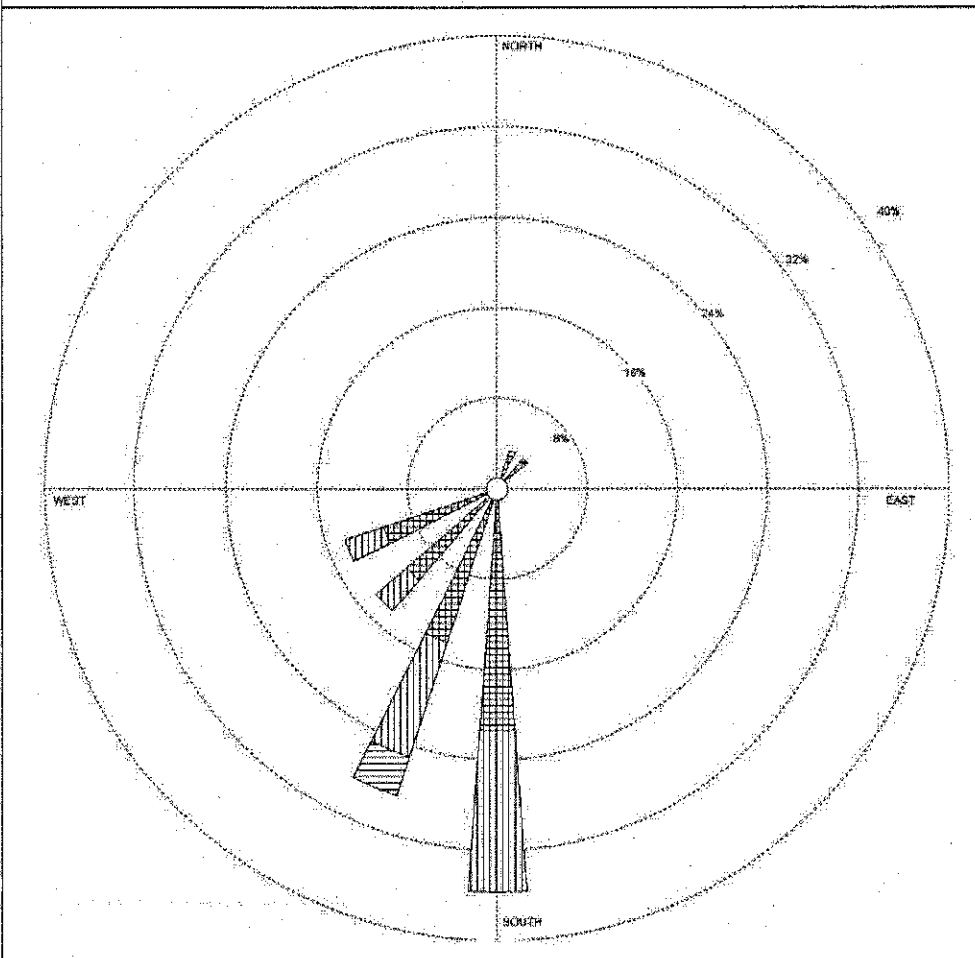
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.120000	0.000000	0.000000	0.000000	0.000000	0.120000
SSW	0.000000	0.400000	0.120000	0.000000	0.000000	0.000000	0.520000
SW	0.000000	0.240000	0.120000	0.000000	0.000000	0.000000	0.360000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.760000	0.240000	0.000000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 5.80 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel/CAMU Dredging - WE12/14/02 (R05902#23),



<p>Wind Speed (Knots)</p> <p>> 21</p> <p>17 - 21</p> <p>11 - 16</p> <p>7 - 10</p> <p>4 - 6</p> <p>1 - 3</p>	MODELER	DATE	COMPANY NAME
	John Finnell	2/27/2003	TechLaw, Inc.
	DISPLAY	UNIT	COMMENTS
	Wind Speed	Knots	No Exceedance at CAMU Sht. 1, 2 & 3: Dredging WE12/14/02 December 10, 2002 to December 11, 2002 33-foot meteorological tower
	AVG. WIND SPEED	CALM WINDS	PROJECT/PLOT NO.
	3.39 Knots	0.00%	Air Monitoring/Operation Plan
	ORIENTATION	PLOT YEAR/DATE/TIME	
	Direction (blowing from)	2002 Jan 1 - Dec 31 Midnight - 11 PM	

Station ID: 05902

(R05902#23)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - WE 12/14/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	1
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	6	4	0	0	0	0	10
SSW	4	3	1	0	0	0	8
SW	3	1	0	0	0	0	4
WSW	3	1	0	0	0	0	4
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	18	9	1	0	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 3.39 Knots

Station ID: 05902
(R05902#23)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU Dredging - WE 12/14/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

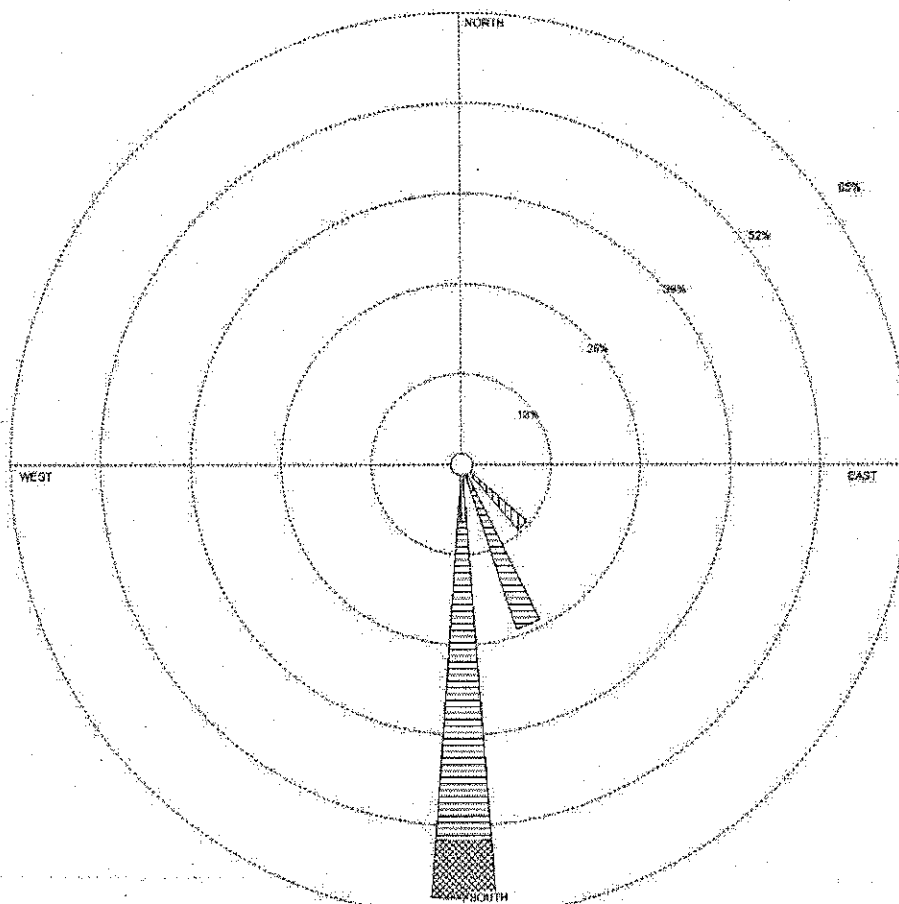
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.035714	0.000000	0.000000	0.000000	0.000000	0.000000	0.035714
NE	0.035714	0.000000	0.000000	0.000000	0.000000	0.000000	0.035714
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.214286	0.142857	0.000000	0.000000	0.000000	0.000000	0.357143
SSW	0.142857	0.107143	0.035714	0.000000	0.000000	0.000000	0.285714
SW	0.107143	0.035714	0.000000	0.000000	0.000000	0.000000	0.142857
WSW	0.107143	0.035714	0.000000	0.000000	0.000000	0.000000	0.142857
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.642857	0.321429	0.035714	0.000000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 3.39 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel/CAMU and IC Dredging - WE12/14/02 (R05902#24),



Wind Speed (Knots) 	MOOBLE John Finnell	DATE 2/27/2003	COMPANY NAME TechLaw, Inc.
DISPLAY Wind Speed	UNIT Knots	COMMENTS No Exceedance at Isolation Cell, CAMU Sins. 1, 2 & 3: Dredging WE12/14/02	
AVG. WIND SPEED 7.83 Knots	CALM WINDS 0.00%		
ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 2002 Jan 1 - Dec 31 Midnight - 11 PM	PROJECT/PLOT NO. Air Monitoring/Operation Plan	

Station ID: 05902

(R05902#24)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU and IC Dredging - WE 12/14/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	3	0	0	0	0	3
SSE	0	1	5	0	0	0	6
S	0	2	11	2	0	0	15
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	6	16	2	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 7.63 Knots

Station ID: 05902

(R05902#24)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU and IC Dredging - WE 12/14/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

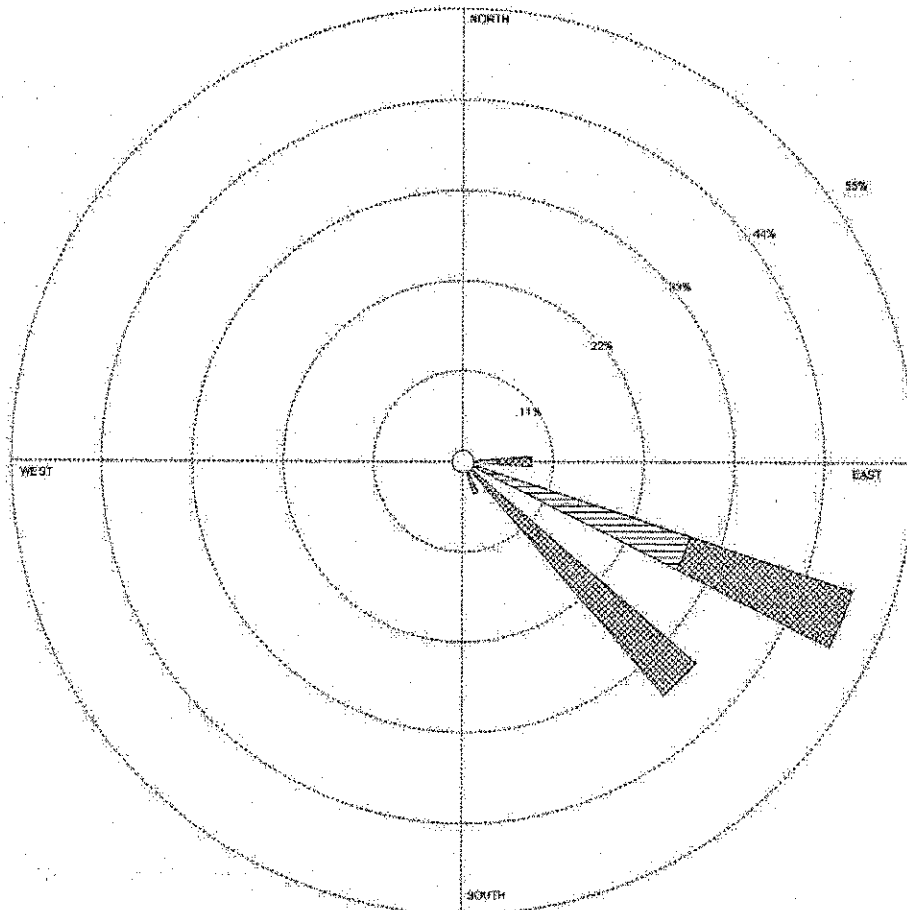
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.125000	0.000000	0.000000	0.000000	0.000000	0.125000
SSE	0.000000	0.041667	0.208333	0.000000	0.000000	0.000000	0.250000
S	0.000000	0.083333	0.458333	0.083333	0.000000	0.000000	0.625000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.250000	0.666667	0.083333	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 7.63 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel CAMU and IC Dredging - WE12/21/02 (R05902#25),



<p>Wind Speed (Knots)</p>	MOOREL	DATE	COMPANY NAME
	John Finnell	2/27/2003	TechLaw, Inc.
	DISPLAY	UNIT	COMMENTS
	Wind Speed	Knots	No Exceedance at Isolation Cell, CAMU Stn. 1, 2 & 3: Dredging WE12/21/02
	AVG. WIND SPEED	CALM WINDS	December 17, 2002 to December 18, 2002
	11.21 Knots	0.00%	33-foot meteorological tower
	ORIENTATION	PLOT YEAR-DATE-TIME	PROJECT/PLOT NO.
	Direction (blowing from)	2002 Jan 1 - Dec 31 Midnight - 11 PM	Air Monitoring/Operation Plan

Station ID: 05902

(R05902#25)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU and IC Dredging - WE 12/21/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	1	1	0	0	2
ESE	0	0	7	5	0	0	12
SE	0	0	0	9	0	0	9
SSE	0	0	0	1	0	0	1
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	8	16	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 11.21 Knots

Station ID: 05902
(R05902#25)

RUN ID: U.S. Steel: CAMU and IC Dredging - WE 12/21/02

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Normalized)

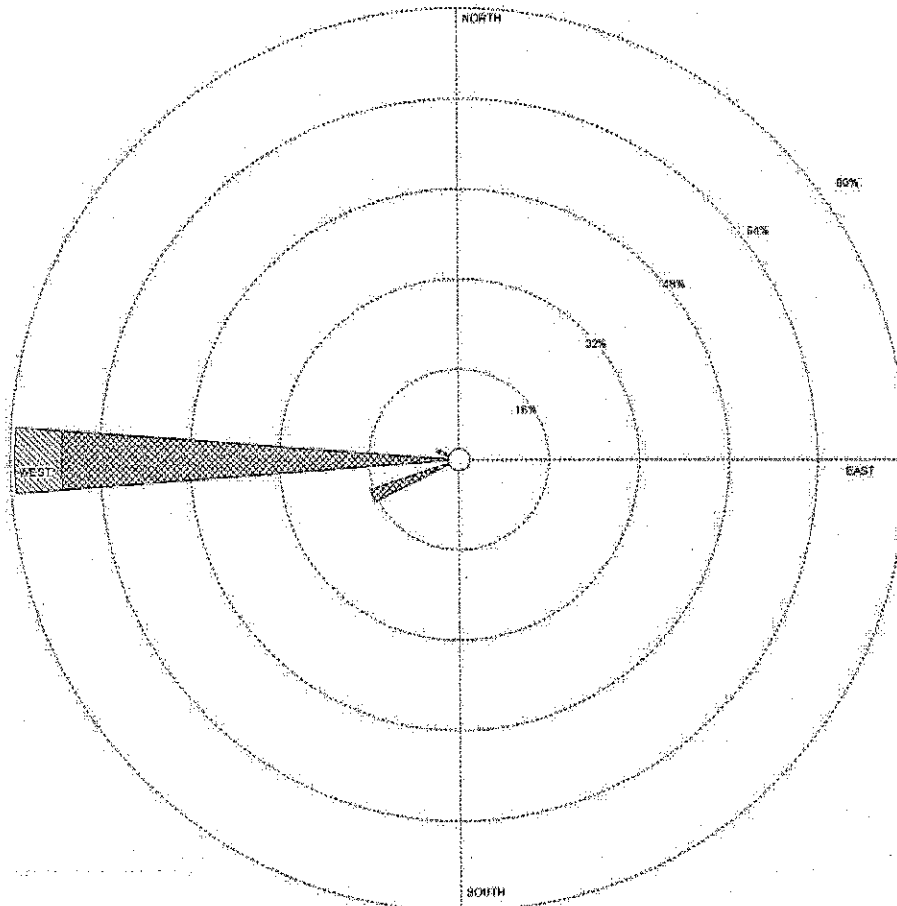
Wind Direction (Blowing From) / Wind Speed (Knots)


	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.041667	0.041667	0.000000	0.000000	0.083333
ESE	0.000000	0.000000	0.291667	0.208333	0.000000	0.000000	0.500000
SE	0.000000	0.000000	0.000000	0.375000	0.000000	0.000000	0.375000
SSE	0.000000	0.000000	0.000000	0.041667	0.000000	0.000000	0.041667
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.000000	0.333333	0.666667	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 11.21 Knots

Station #05902 - U.S. Steel/CAMU and IC Dredging - WE12/21/02 (R05902#26).



 Wind Speed (Knots) > 21 17 - 21 11 - 15 7 - 10 4 - 6 1 - 3	MOODELER John Finnell	DATE 2/27/2003	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS No Exceedance at Isolation Cell, CAMU Stn. 1, 2 & 3: Dredging WE12/21/02 December 23, 2002 to December 24, 2002 33-foot meteorological tower
	AVG. WIND SPEED 14.33 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 2002 Jan 1 - Dec 31 Midnight - 11 PM	

Station ID: 05902
(R05902#26)

RUN ID: U.S. Steel: CAMU and IC Dredging - WE 12/21/02

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	1	3	0	0	4
W	0	0	0	17	2	0	19
WNW	0	0	0	1	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	1	21	2	0	

Frequency of Calm Winds: 0

Average Wind Speed: 14.33 Knots

Station ID: 05902
(R05902#26)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: CAMU and IC Dredging - WE 12/21/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

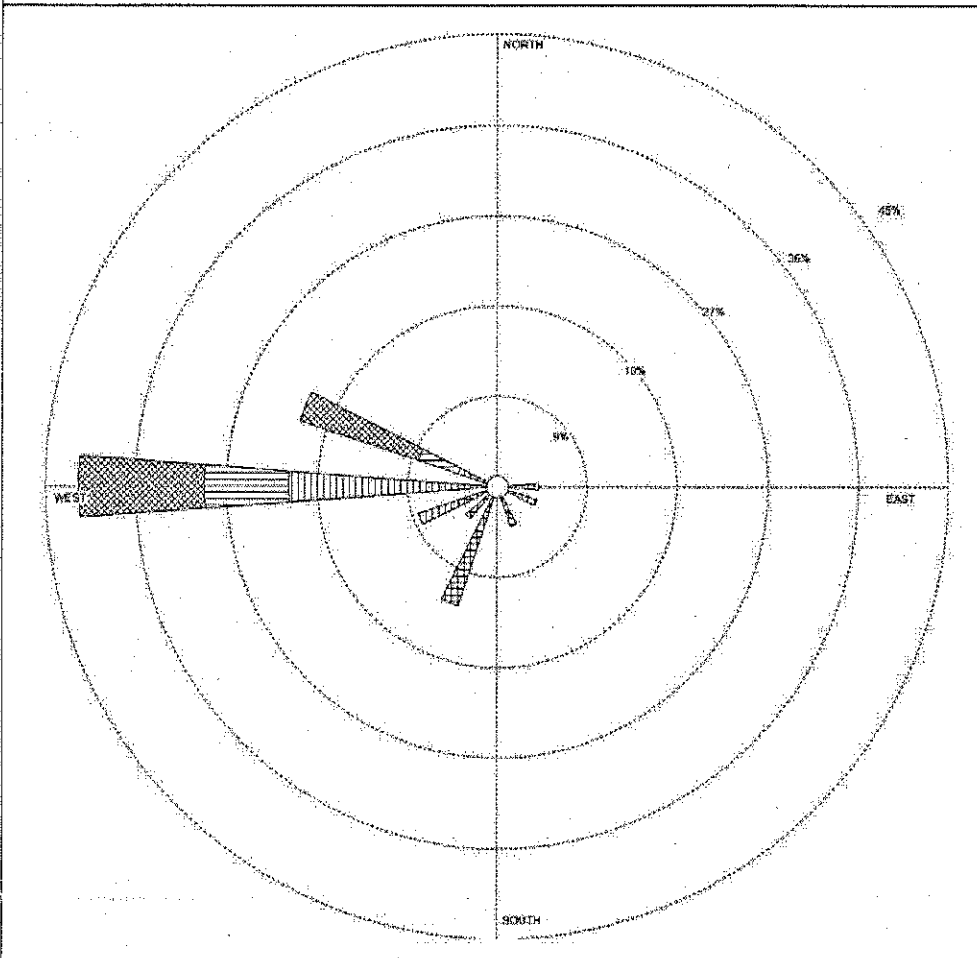
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.041667	0.125000	0.000000	0.000000	0.166667
W	0.000000	0.000000	0.000000	0.708333	0.083333	0.000000	0.791667
WNW	0.000000	0.000000	0.000000	0.041667	0.000000	0.000000	0.041667
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.000000	0.041667	0.875000	0.083333	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 14.33 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel: Isolation Cell Dredging - WE12/23/02 (R05902#27).



<p>Wind Speed (Knots)</p>	<p>MODELER John Finnell</p>	<p>DATE 2/27/2003</p>	<p>COMPANY NAME TechLaw, Inc.</p>
	<p>DISPLAY Wind Speed</p>	<p>UNIT Knots</p>	<p>COMMENTS Benzene Exceedance at Isolation Cell: Dredging WE12/23/02 December 23, 2002 to December 24, 2002 33-foot meteorological tower</p>
	<p>Avg. WIND SPEED 6.58 Knots</p>	<p>CALM WINDS 0.00%</p>	
	<p>ORIENTATION Direction (blowing from)</p>	<p>PLOT YEAR-DATE-TIME 2002 Jan 1 - Dec 31 Midnight - 11 PM</p>	<p>PROJECT/PLOT NO. Air Monitoring/Operation Plan</p>

Station ID: 05902
(R05902#27)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Dredging - WE 12/23/02

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	1	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
S	0	0	0	0	0	0	0
SSW	3	0	0	0	0	0	3
SW	1	0	0	0	0	0	1
WSW	1	1	0	0	0	0	2
W	0	5	2	3	0	0	10
WNW	0	1	1	3	0	0	5
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	6	9	3	6	2	0	

Frequency of Calm Winds: 0

Average Wind Speed: 6.58 Knots

Station ID: 05902

(R05902#27)

Year: 2002

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Dredging - WE 12/23/02

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

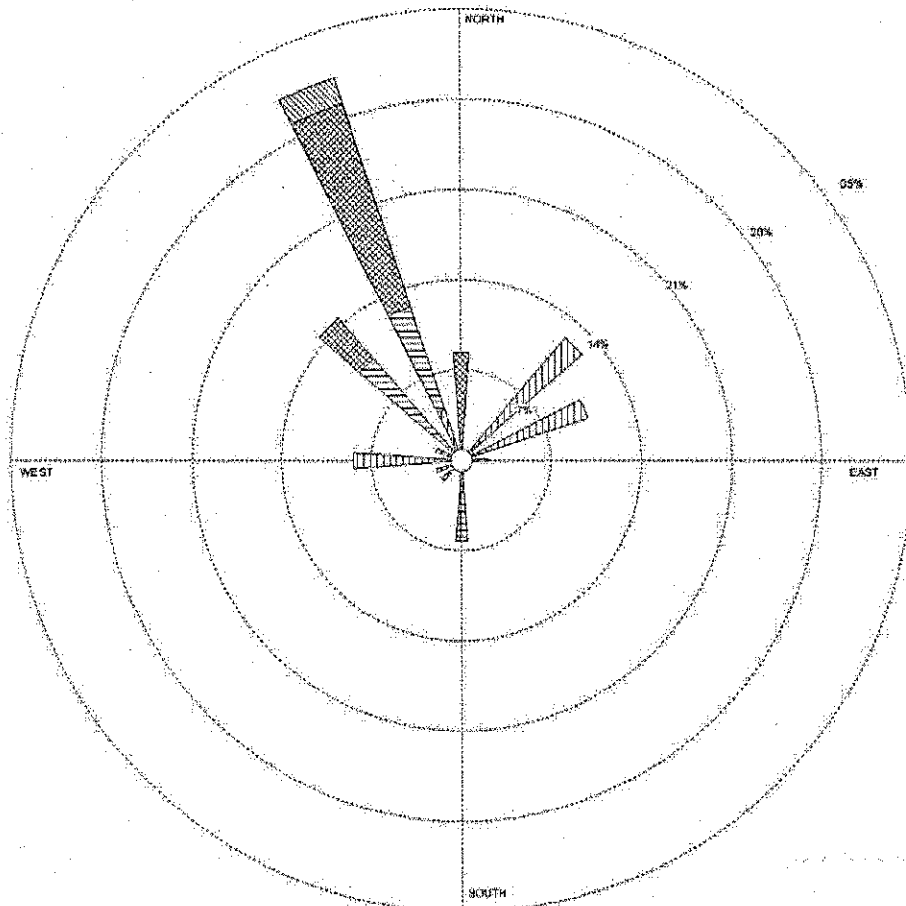
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.041667	0.000000	0.000000	0.000000	0.000000	0.041667
ESE	0.000000	0.041667	0.000000	0.000000	0.000000	0.000000	0.041667
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.041667	0.000000	0.000000	0.000000	0.000000	0.000000	0.041667
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.125000	0.000000	0.000000	0.000000	0.000000	0.000000	0.125000
SW	0.041667	0.000000	0.000000	0.000000	0.000000	0.000000	0.041667
WSW	0.041667	0.000000	0.000000	0.000000	0.000000	0.000000	0.083333
W	0.000000	0.000000	0.000000	0.125000	0.000000	0.000000	0.041667
WNW	0.000000	0.041667	0.041667	0.125000	0.000000	0.000000	0.208333
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.250000	0.375000	0.125000	0.250000	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 6.58 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel: Isolation Cell Dredging - WE01/04/03 (R05902#28).



Wind Speed (Knots)



>21
17-21
13-16
9-12
4-8
1-3

MOOREL

John Finnell

DATE

2/27/2003

COMPANY NAME

TechLaw, Inc.

DISPLAY

Wind Speed

UNIT

Knots

COMMENTS

Naphthalene Exceedance at
Isolation Cell: Dredging
WE01/04/03
January 1, 2003 to
January 2, 2003
33-foot meteorological tower

AVG. WIND SPEED

7.92 Knots

CALM WINDS

0.00%

ORIENTATION
Direction
(blowing from)

PLOT YEAR-DATE-TIME
2003
Jan 1 - Dec 31
Midnight - 11 PM

PROJECT/LOT NO.

Air Monitoring/Operation Plan

Station ID: 05902
(R05902#28)

Year: 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Dredging - WE 01/04/03

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	1	3	0	0	4
NNE	0	0	0	0	0	0	0
NE	1	5	0	0	0	0	6
ENE	1	4	0	0	0	0	5
E	1	0	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	3	0	0	0	0	0	3
SSW	0	0	0	0	0	0	0
SW	1	0	0	0	0	0	1
WSW	0	1	0	0	0	0	1
W	0	4	0	0	0	0	4
WNW	0	1	0	0	0	0	1
NW	0	0	5	2	0	0	7
NNW	0	2	4	8	1	0	15
Total	7	17	10	13	1	0	

Frequency of Calm Winds: 0

Average Wind Speed: 7.92 Knots

Station ID: 05902

(R05902#28)

Year: 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Dredging - WE 01/04/03

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

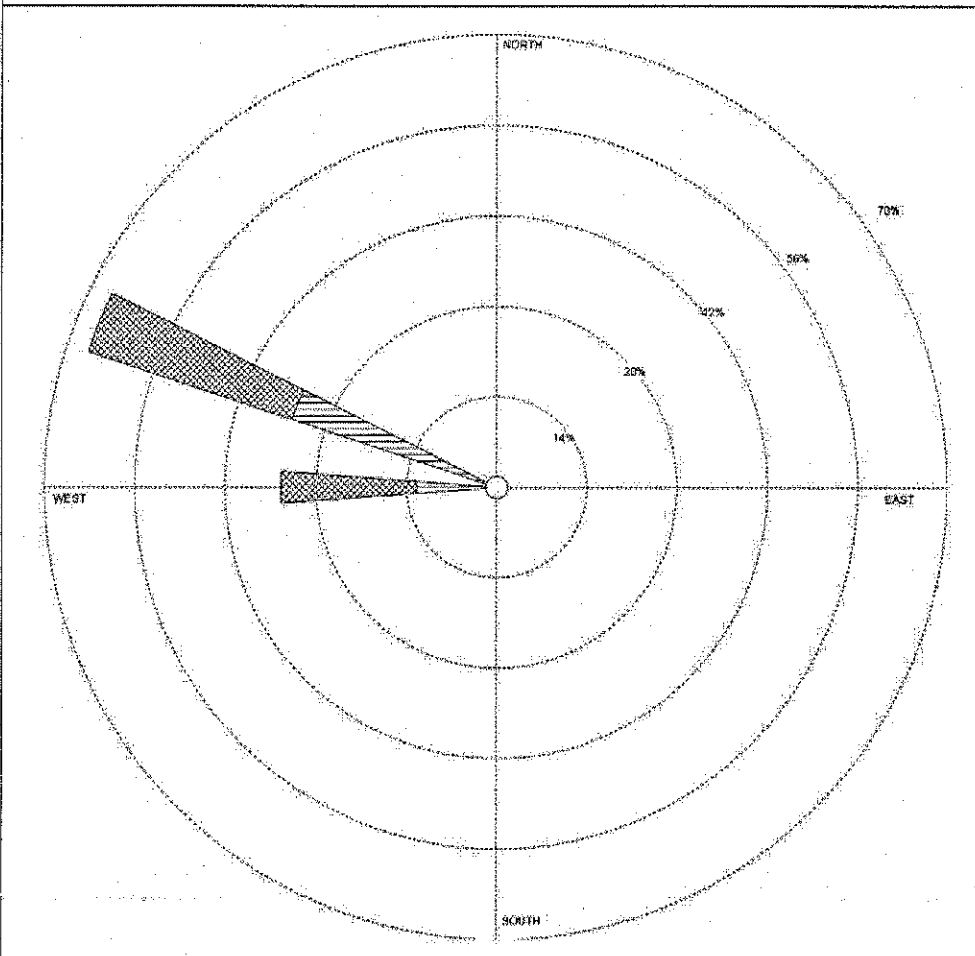
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.020833	0.062500	0.000000	0.000000	0.083333
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.020833	0.104167	0.000000	0.000000	0.000000	0.000000	0.125000
ENE	0.020833	0.083333	0.000000	0.000000	0.000000	0.000000	0.104167
E	0.020833	0.000000	0.000000	0.000000	0.000000	0.000000	0.020833
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.062500	0.000000	0.000000	0.000000	0.000000	0.000000	0.062500
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.020833	0.000000	0.000000	0.000000	0.000000	0.000000	0.020833
WSW	0.000000	0.020833	0.000000	0.000000	0.000000	0.000000	0.020833
W	0.000000	0.083333	0.000000	0.000000	0.000000	0.000000	0.083333
WNW	0.000000	0.020833	0.000000	0.000000	0.000000	0.000000	0.020833
NW	0.000000	0.000000	0.104167	0.041667	0.000000	0.000000	0.145833
NNW	0.000000	0.041667	0.083333	0.166667	0.020833	0.000000	0.312500
Total	0.145833	0.354167	0.208333	0.270833	0.020833	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 7.92 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel: Isolation Cell Dredging - WE01/11/03 (R05902#29).



<p>Wind Speed (Knots)</p>	MODELER John Finnell	DATE 3/4/2003	COMPANY NAME TechLaw, Inc.
	DISPLAY Wind Speed	UNIT Knots	COMMENTS Naphthalene Exceedance at Isolation Cell: Dredging WE01/11/02 January 10, 2003 to January 11, 2003 33-foot meteorological tower
	AVG. WIND SPEED 10.79 Knots	CALM WINDS 0.00%	
	ORIENTATION Direction (blowing from)	PLOT YEAR-DATE-TIME 2003 Jan 1 - Dec 31 Midnight - 11 PM	PROJECT/PILOT NO. Air Monitoring/Operation Plan

Station ID: 05902
(R05902#29)

Year: 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Dredging - WE 01/11/03

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	3	5	0	0	8
WNW	0	0	8	8	0	0	16
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Total	0	0	11	13	0	0	

Frequency of Calm Winds: 0

Average Wind Speed: 10.79 Knots

Station ID: 05902

(R05902#29)

Year: 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Dredging - WE 01/11/03

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

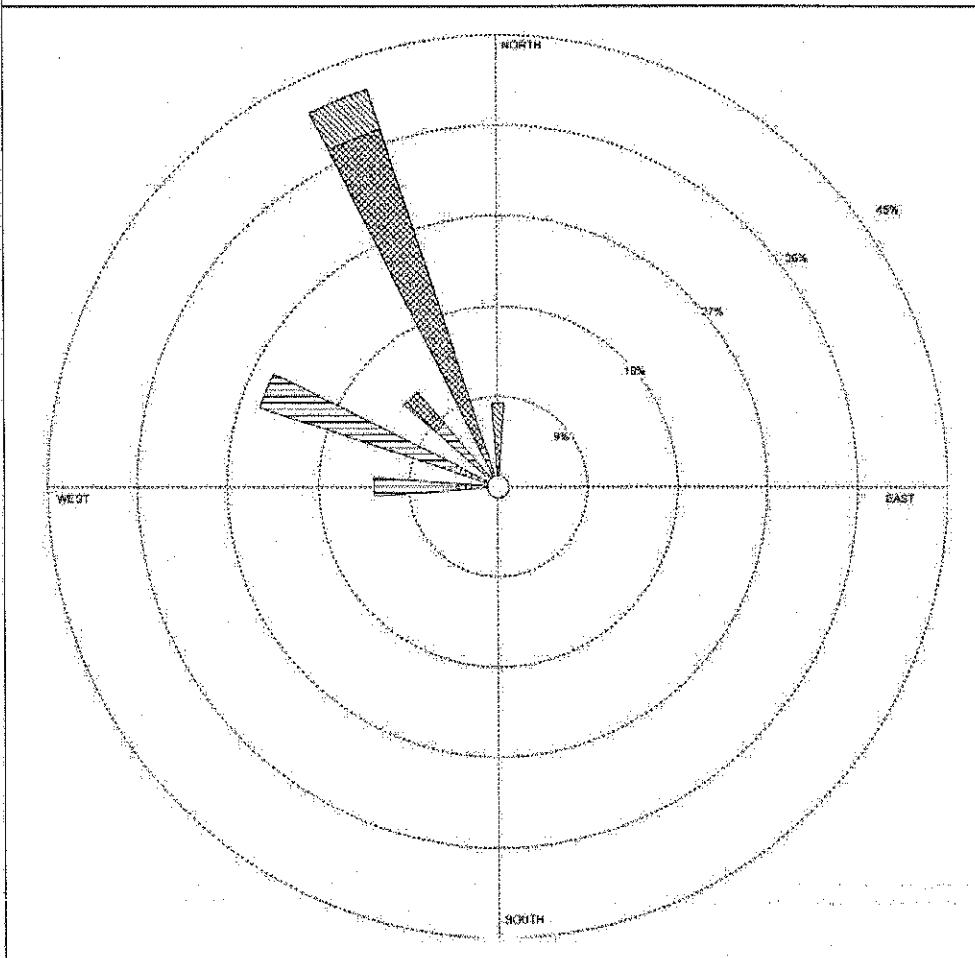
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.125000	0.208333	0.000000	0.000000	0.333333
WNW	0.000000	0.000000	0.333333	0.333333	0.000000	0.000000	0.666667
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Total	0.000000	0.000000	0.458333	0.541667	0.000000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 10.79 Knots

WIND ROSE PLOT

Station #05902 - U.S. Steel: Isolation Cell Dredging - WE01/18/03 (R05902#30).



<p>Wind Speed (Knots)</p> <p>>21</p> <p>17-21</p> <p>13-16</p> <p>7-10</p> <p>4-6</p> <p>1-3</p>	MODELER	DATE	COMPANY NAME
	John Finnell	2/27/2003	TechLaw, Inc.
	DISPLAY	UNIT	COMMENTS
	Wind Speed	Knots	Naphthalene Exceedance at Isolation Cell: Dredging WE01/18/03
	Avg. Wind Speed	CALM WINDS	January 16, 2003 to January 17, 2003
	11.46 Knots	0.00%	33-foot meteorological tower
	ORIENTATION	PLOT YEAR-DATE-TIME	PROJECT/PLOT NO.
	Direction (blowing from)	2003 Jan 1 - Dec 31 Midnight - 11 PM	Air Monitoring/Operation Plan

Station ID: 05902
(R05902#30)

RUN ID: U.S. Steel: Isolation Cell Dredging - WE 01/18/03

Year: 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11- 16	17- 21	>21	Total
N	0	0	0	1	1	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	1	2	0	0	0	3
WNW	0	1	5	0	0	0	6
NW	0	0	2	1	0	0	3
NNW	0	0	1	8	1	0	10
Total	0	2	10	10	2	0	

Frequency of Calm Winds: 0

Average Wind Speed: 11.46 Knots

Station ID: 05902

(R05902#30)

Year: 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Isolation Cell Dredging - WE 01/18/03

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.000000	0.000000	0.041667	0.041667	0.000000	0.083333
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.041667	0.083333	0.000000	0.000000	0.000000	0.125000
WNW	0.000000	0.041667	0.208333	0.000000	0.000000	0.000000	0.250000
NW	0.000000	0.000000	0.083333	0.041667	0.000000	0.000000	0.125000
NNW	0.000000	0.000000	0.041667	0.333333	0.041667	0.000000	0.416667
Total	0.000000	0.083333	0.416667	0.416667	0.083333	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 11.46 Knots

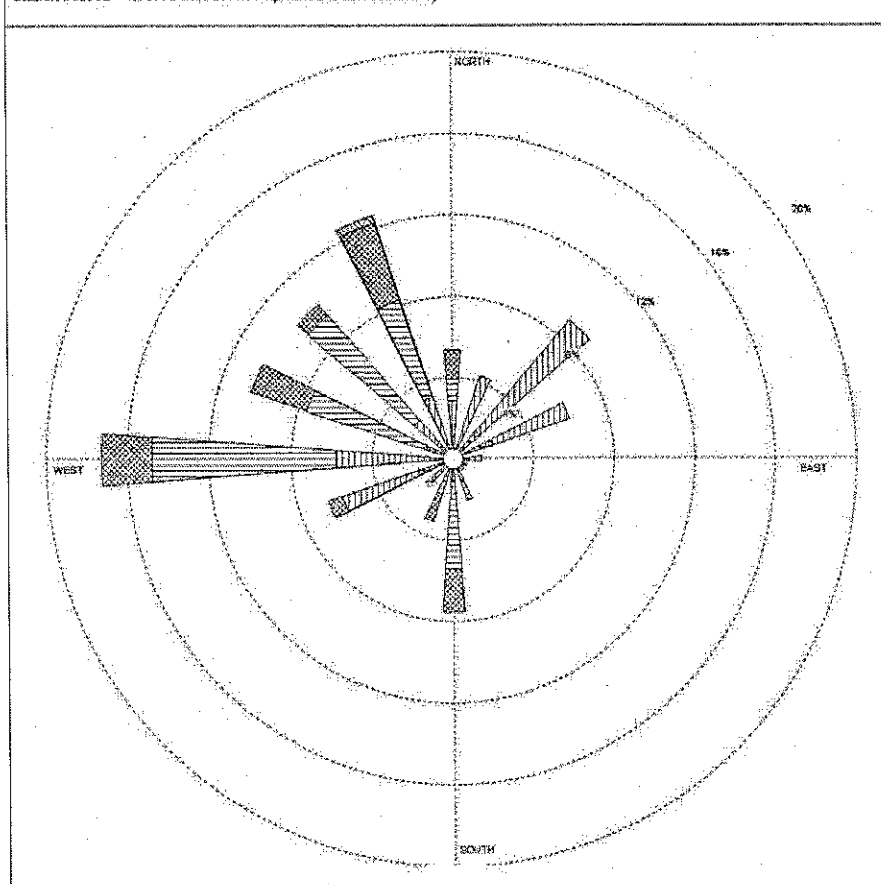
ATTACHMENT 4

Meteorological Data

U.S. Steel Sampling All Exceedances of Naphthalene, Benzene and Benzo(a)pyrene July 14, 2002 to January 17, 2003

WIND ROSE PLOT

Station #05902 - R05902 U.S. Steel: Naphthalene Exceedances,



Wind Speed (Knots)	MOODLER John Finnell	DATE: 2/26/03	COMPANY NAME TechLaw, Inc.
<div data-bbox="407 1247 451 1457" data-label="Figure"> </div>	DISPLAY Wind Speed	UNIT Knots	COMMENTS: 10 Naphthalene Exceedances July 14, 2002 to January 17, 2003 33-foot meteorological tower
	AVG. WIND SPEED 7.14 Knots	CALM WINDS 0.72%	
	ORIENTATION Direction (blowing from)	2002 Jan 1 - Dec 31 Midnight - 11 PM	PROJECT/LOT NO. Air Monitoring/Operation Plan

WRPLOT Ver 9.0 by Laine Environmental Software - www.laineenvironmental.com

Station ID: 05902

RUN ID: R05902 US Steel, Gary, IN: Naphthalene

Exceedences

Year: 2002 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	8	3	4	0	0	15
NNE	1	11	0	0	0	0	12
NE	5	20	0	0	0	0	25
ENE	6	11	0	0	0	0	17
E	2	2	0	0	0	0	4
ESE	0	2	0	0	0	0	2
SE	1	0	1	0	0	0	2
SSE	2	1	3	0	0	0	6
S	3	0	12	6	0	0	21
SSW	0	1	4	4	0	0	9
SW	1	3	1	0	0	0	5
WSW	5	11	0	2	0	0	18
W	0	16	25	7	0	0	48
WNW	1	3	17	8	0	0	29
NW	3	4	19	2	0	0	28
NNW	1	8	14	11	1	0	35
Total	31	101	99	44	1	0	

Frequency of Calm Winds: 2%

Average Wind Speed: 7.14 Knots

Station ID: 05902
 Exceedences
 Year: 2002 2003
 Date Range: Jan 1 - Dec 31
 Time Range: Midnight - 11 PM

RUN ID: R05902 US Steel, Gary, IN: Naphthalene

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

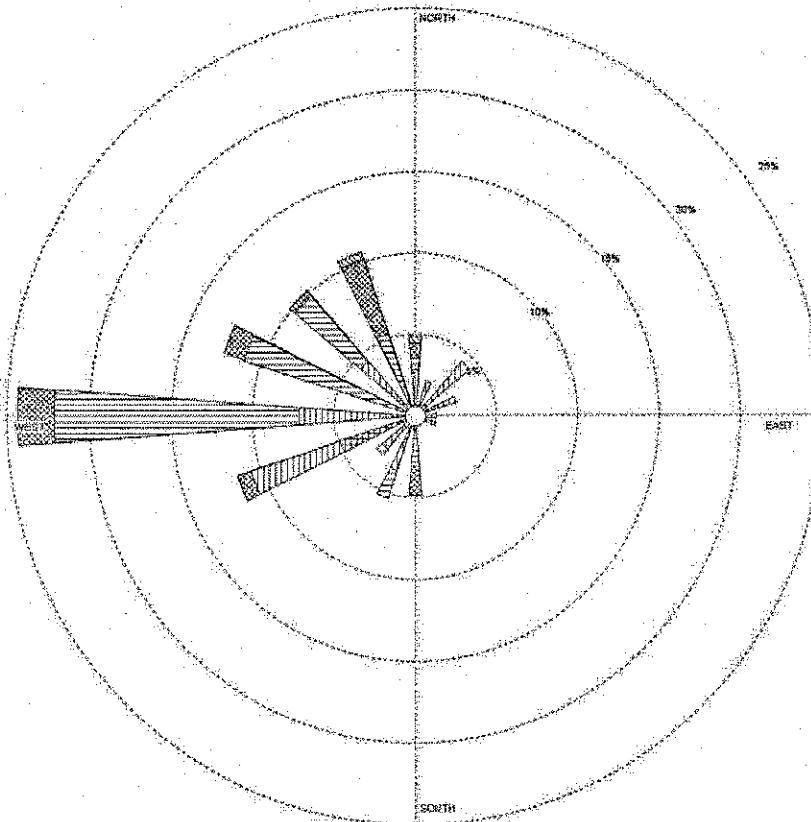
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.028777	0.010791	0.014388	0.000000	0.000000	0.053957
NNE	0.003597	0.039568	0.000000	0.000000	0.000000	0.000000	0.043165
NE	0.017986	0.071942	0.000000	0.000000	0.000000	0.000000	0.089928
ENE	0.021583	0.039568	0.000000	0.000000	0.000000	0.000000	0.061151
E	0.007194	0.007194	0.000000	0.000000	0.000000	0.000000	0.014388
ESE	0.000000	0.007194	0.000000	0.000000	0.000000	0.000000	0.007194
SE	0.003597	0.000000	0.003597	0.000000	0.000000	0.000000	0.007194
SSE	0.007194	0.003597	0.010791	0.000000	0.000000	0.000000	0.021583
S	0.010791	0.000000	0.043165	0.021583	0.000000	0.000000	0.075540
SSW	0.000000	0.003597	0.014388	0.014388	0.000000	0.000000	0.032374
SW	0.003597	0.010791	0.003597	0.000000	0.000000	0.000000	0.017986
WSW	0.017986	0.039568	0.000000	0.007194	0.000000	0.000000	0.064748
W	0.000000	0.057554	0.089928	0.025180	0.000000	0.000000	0.172662
WNW	0.003597	0.010791	0.061151	0.028777	0.000000	0.000000	0.104317
NW	0.010791	0.014388	0.068345	0.007194	0.000000	0.000000	0.100719
NNW	0.003597	0.028777	0.050360	0.039568	0.003597	0.000000	0.125899
Total	0.111511	0.363309	0.356115	0.158273	0.003597	0.000000	

Frequency of Calm Winds: 0.72%

Average Wind Speed: 7.14 Knots

WIND ROSE PLOT

Station #05902 - R05902 US Steel; Benzene Exceedences, IN



<p>Wind Speed (Knots)</p> <p> </p>	<p>MODELER John Finnell</p> <p>DISPLAY Wind Speed</p> <p>AVG. WIND SPEED 7.08 Knots</p> <p>ORIENTATION Direction (blowing from)</p>	<p>DATE 2/26/03</p> <p>UNIT Knots</p> <p>CALM WINDS 9.44%</p> <p>PLOT YEAR-DATE-TIME 2002 Jan 1 - Dec 31 Midnight - 11 PM</p>	<p>COMPANY NAME TechLaw, Inc.</p> <p>COMMENTS 8 Benzene Exceedences July 14, 2002 to January 17, 2003 33-foot meteorological tower</p> <p>PROJECT/PILOT NO. Air Monitoring/Operation Plan</p>
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WINDLOT: Ver. 3.0 by Lantek Environmental Software - www.lantek.com/landsoft/

Station ID: 05902

RUN ID: U.S. Steel: Benzene

Exceedances

Year: 2002 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	6	2	2	1	0	11
NNE	1	4	0	0	0	0	5
NE	2	8	0	0	0	0	10
ENE	2	4	0	0	0	0	6
E	0	3	0	0	0	0	3
ESE	0	3	0	0	0	0	3
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
S	0	2	5	4	0	0	11
SSW	4	4	4	0	0	0	12
SW	2	4	1	0	0	0	7
WSW	11	13	0	2	0	0	26
W	0	16	34	5	0	0	55
WNW	1	2	22	3	0	0	28
NW	3	7	12	1	0	0	23
NNW	0	4	8	11	1	0	24
Total	27	80	88	28	2	0	

Frequency of Calm Winds: 1%

Average Wind Speed: 7.08 Knots

Station ID: 05902
 Exceedances
 Year: 2002 2003
 Date Range: Jan 1 - Dec 31
 Time Range: Midnight - 11 PM

RUN ID: U.S. Steel: Benzene

Frequency Distribution
 (Normalized)

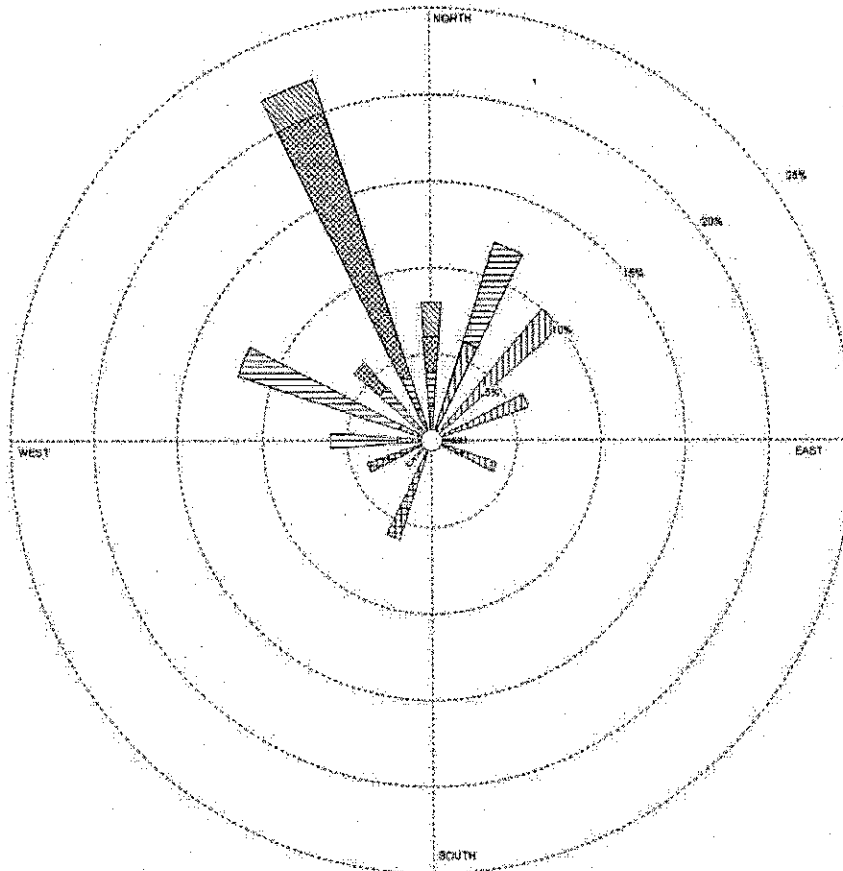
Wind Direction (Blowing From) / Wind Speed (Knots)							
	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.026549	0.008850	0.008850	0.004425	0.000000	0.048673
NNE	0.004425	0.017699	0.000000	0.000000	0.000000	0.000000	0.022124
NE	0.008850	0.035398	0.000000	0.000000	0.000000	0.000000	0.044248
ENE	0.008850	0.017699	0.000000	0.000000	0.000000	0.000000	0.026549
E	0.000000	0.013274	0.000000	0.000000	0.000000	0.000000	0.013274
ESE	0.000000	0.013274	0.000000	0.000000	0.000000	0.000000	0.013274
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.004425	0.000000	0.000000	0.000000	0.000000	0.000000	0.004425
S	0.000000	0.008850	0.022124	0.017699	0.000000	0.000000	0.048673
SSW	0.017699	0.017699	0.017699	0.000000	0.000000	0.000000	0.053097
SW	0.008850	0.017699	0.004425	0.000000	0.000000	0.000000	0.030973
WSW	0.048673	0.057522	0.000000	0.008850	0.000000	0.000000	0.115044
W	0.000000	0.070796	0.150442	0.022124	0.000000	0.000000	0.243363
WNW	0.004425	0.008850	0.097345	0.013274	0.000000	0.000000	0.123894
NW	0.013274	0.030973	0.053097	0.004425	0.000000	0.000000	0.101770
NNW	0.000000	0.017699	0.035398	0.048673	0.004425	0.000000	0.106195
Total	0.119469	0.353982	0.389381	0.123894	0.008850	0.000000	

Frequency of Calm Winds: 0.44%

Average Wind Speed: 7.08 Knots

WIND ROSE PLOT

Station #05902 - R05902 U.S. Steel: Benzo(a)pyrene Exceedances,



Wind Speed (Knots)



MODELER
John Finnell

DATE
2/28/03

COMPANY NAME
TechLaw, Inc.

DISPLAY
Wind Speed

UNIT
Knots

COMMENTS
**2 Benzo(a)pyrene Exceedances
July 14, 2002 to
January 17, 2003
33-foot meteorological tower**

AVG. WIND SPEED
7.78 Knots

CALM WINDS
0.00%

ORIENTATION
**Direction
(blowing from)**

**2002
Jan 1 - Dec 31
Midnight - 11 PM**

PROJECT/PILOT NO.
Air Monitoring/Operation Plan

Station ID: 05902

RUN ID: R05902 U.S. Steel: Benzo(a)pyrene

Exceedances

Year: 2002 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

Frequency Distribution

(Count)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0	1	1	1	1	1	4
NNE	3	3	0	0	0	0	6
NE	0	5	0	0	0	0	5
ENE	0	3	0	0	0	0	3
E	1	0	0	0	0	0	1
ESE	1	1	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	3	0	0	0	0	0	3
SW	1	0	0	0	0	0	1
WSW	2	0	0	0	0	0	1
W	0	1	2	0	0	0	3
WNW	0	1	5	0	0	0	6
NW	0	0	2	1	0	0	3
NNW	1	0	1	8	1	0	11
Total	9	15	14	10	2	0	

Frequency of Calm Winds: 0

Average Wind Speed: 7.78 Knots

Station ID: 05902

Exceedances

Year: 2002 2003

Date Range: Jan 1 - Dec 31

Time Range: Midnight - 11 PM

RUN ID: R05902 U.S. Steel: Benzo(a)pyrene

Frequency Distribution

(Normalized)

Wind Direction (Blowing From) / Wind Speed (Knots)

	1 - 3	4 - 6	7 - 10	11 - 16	17 - 21	>21	Total
N	0.000000	0.020000	0.020000	0.020000	0.020000	0.000000	0.080000
NNE	0.000000	0.060000	0.060000	0.000000	0.000000	0.000000	0.120000
NE	0.000000	0.100000	0.000000	0.000000	0.000000	0.000000	0.100000
ENE	0.000000	0.060000	0.000000	0.000000	0.000000	0.000000	0.060000
E	0.020000	0.000000	0.000000	0.000000	0.000000	0.000000	0.020000
ESE	0.020000	0.020000	0.000000	0.000000	0.000000	0.000000	0.040000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.060000	0.000000	0.000000	0.000000	0.000000	0.000000	0.060000
SW	0.020000	0.000000	0.000000	0.000000	0.000000	0.000000	0.020000
WSW	0.040000	0.000000	0.000000	0.000000	0.000000	0.000000	0.040000
W	0.000000	0.020000	0.040000	0.000000	0.000000	0.000000	0.060000
WNW	0.000000	0.020000	0.100000	0.000000	0.000000	0.000000	0.120000
NW	0.000000	0.020000	0.040000	0.020000	0.000000	0.000000	0.060000
NNW	0.020000	0.000000	0.000000	0.000000	0.000000	0.000000	0.220000
Total	0.180000	0.300000	0.280000	0.200000	0.040000	0.000000	

Frequency of Calm Winds: 0.00%

Average Wind Speed: 7.78 Knots

